STUDY BY THE STAFF OF THE U.S.

General Accounting Office

Computer Technology At IRS: Present And Planned

The Internal Revenue Service processed over 170 million tax returns and collected about $632 billion in tax revenues during fiscal year 1982. Without computers, these activities would have been virtually impossible.

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FOREWORD

The Internal Revenue Service (IRS) processed over 170 million tax returns in fiscal year 1982. During that same period, it collected about $632 billion in tax revenues. Without computers, these activities would have been virtually impossible. Computer resources--hardware, software, and people--support almost all of IRS' operations and functions. As one of the largest nondefense users of computers in the Federal Government, IRS operates a number of computer facilities and spends about 25 percent of its annual operating budget for data processing operations. Approximately 27 percent of the Service's 84,000 employees were assigned to data processing operations during fiscal year 1983. An ambitious and far-reaching program is now underway to increase the level of computer support even more.

This document describes IRS' computer operations as well as planned replacements, improvements, and additions as of July 1983. Computers, teleprocessing, telecommunications, office automation, and other technology associated with information and data processing are critical to IRS' mission of enforcing the Nation's tax laws. A basic familiarity with how IRS uses this technology to process data and manage its operations should be the starting point for understanding any of its programs and activities. Further, IRS' efforts to more fully automate its operations are certain to generate increased attention from concerned parties both external to and within IRS. In this regard, this document provides a useful overview of all of IRS' data processing initiatives and projects.

Although it was prepared primarily for use by IRS, GAO, and various other external review groups, this study can also serve a wider audience. Computer technology is rapidly growing and improving and presents an ever-increasing number of opportunities to enhance efficiency and effectiveness. The situation IRS currently faces--assuring that these opportunities are taken full advantage of in the most cost-beneficial manner--is typical for any large organization that is highly dependent on computers. Understanding how one such organization is responding to this challenge should prove useful to others facing a similar problem. State and local government tax agencies, for example, might find it useful to compare and contrast IRS' returns processing system with their own. Similarly, other nations may wish to compare this system with theirs.

The study begins with a discussion of the computer processing of tax returns, which is followed in chapter 2 by a description of the data reliability controls in the tax returns processing system. Chapter 3 identifies the enhancements and improvements presently planned for the system. Chapter 4 is

a description of the computer processing of information returns at IRS while chapter 5 describes the current and planned non-returns processing systems. Finally, chapter 6 is a discussion of IRS policies and procedures for managing its computer resources.

In preparing the study, we observed operations in IRS' data processing facilities and also interviewed IRS officials at the National Office responsible for providing policies and procedures for managing computer operations and staff. In addition, we reviewed studies and plans documenting computer requirements and spoke with those groups in IRS who are supported by computers. Finally, we analyzed reports on IRS' computer operations from internal and external review groups, including previous GAO reports.

This study does not purport to be all inclusive, and in using it readers will need to keep the following limitations in mind. First, the document presents an overview; more detailed information, if needed, should be obtained from IRS. Second, the overview depicts the situation as it existed at one particular point in time, July 1983; much of the information will change as new systems are implemented or as plans are modified or even cancelled. Third, given the dynamics of the Service's ADP environment, we did not validate all of the information obtained from IRS.

W. J. Anderson

William J. Anderson
Director

C o n t e n t s

APPENDIX

CHAPTER 1

COMPUTER PROCESSING OF TAXES

It is no exaggeration to say that without computers, the Internal Revenue Service would find it impossible to process the millions of tax returns filed each year and effectively use all of the information contained in these returns. As one of the largest non-defense users of computers in the Federal Government, IRS has large computer systems in operation across the country and spends about 25 percent of its operating budget for ADP support. Approximately 27 percent of the Service's 84,000 employees were assigned to data processing operations during fiscal year 1983.

Processing tax returns and tax related data and accounting for tax receipts is IRS' major ADP function. During fiscal year 1982, IRS' 10 regional service centers and National Computer Center processed about 170.4 million tax returns and supplemental documents and collected and/or accounted for over $632 billion in tax receipts. Over 40 large computer systems in the 10 service centers and National Computer Center processed the millions of tax returns and related documents and updated taxpayer accounts which are maintained at the national center. Collectively, these 10 service centers and the National Computer Center comprise the tax processing system.

Providing a basic understanding of the computer based tax processing system is the focus of this chapter. We have included systems flowcharts to assist in understanding the flow of tax returns and tax information through the system (see apps. VII through IX).

TAX PROCESSING SYSTEM OVERVIEW

IRS' computer based tax processing system is probably one of the more complex applications of its kind in the country. The system handles millions of transactions annually in support of IRS tax administration responsibilities. Since being approved by Treasury in 1959, the processing system has grown from 3 regional service centers to 10 with a centralized processing center where master file accounts are maintained. Since the master files were activated in the mid 1960s, the number of individual and business tax accounts has grown from 42.6 million to 145.9 million accounts, an increase of 350 percent. During this same period, revenue collections have grown from $129 billion to over $630 billion annually and the number of tax returns filed has grown from 104 million to over 170 million annually. As the tax administration workload increased, the tax processing system expanded to meet the growth. In addition, tax law complexity and new IRS collection, compliance, and management programs and initiatives have contributed to the size, complexity, and importance of the computer based tax processing system. Further, the tax

processing system may be increasingly used to provide source
data for other IRS information systems.

The ADP based tax processing system is IRS' major tool for
processing tax returns and tax receipts and for confirming and
maintaining taxpayers' voluntary compliance with the tax laws
and regulations. The system has been designed to

    --provide a systematic check on individuals and
       businesses who fail to file a tax return,

    --verify the mathematical accuracy of tax returns and, as
       a result, compute tax or refunds due,

    --identify taxpayer indebtedness due to delinquent taxes
       before issuing a refund,

    --identify duplicate claims for a tax refund,

    --provide consolidated current tax account information
       including filing status for each taxpayer,

    --match data reported on information documents (such as
       Forms W-2, 1099, and 1087) with corresponding data
       reported on tax returns (see ch. 4),

    --analyze tax return information to identify returns with
       audit potential, and

    --provide information needed for management reports,
       Statistics of Income reporting, and tax policy and
       administration analysis.

To provide a conceptual framework for understanding how the tax
processing system works, we will describe and explain the system
and the relationship of service centers and the National
Computer Center (NCC) in terms of (1) pipeline processing and
(2) auxiliary or other support system processing.

Pipeline processing involves receiving and transcribing tax
returns and posting this information to individual accounts.
It is comprised of two major components--a master file located
and maintained at NCC at Martinsburg, West Virginia, which
contains an account for each individual and business taxpayer
reflecting entity and accounting information, and a processing
system installed in each of IRS' 10 regional service centers
which receives and controls tax returns and subjects the return
to math error, validity, and accounting checks so that only
perfected data is transmitted to the master file for posting.

Auxiliary or other support system processing (non-pipeline)
involves systems that contain selected account information and
are used by various service center functions to carry out and

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manage tax administration requirements. Generally, the auxiliary or support systems allow users to more effectively carry out their portion of IRS' tax administration mission by providing managers with workload monitoring information; by controlling and accounting for tax receipts; and by issuing bills, notices, and letters to taxpayers. In addition, the systems provide transcripts of account information, delinquency notices, inventory lists, and reports of examination results. The systems support tax account maintenance by providing the district offices and service centers with an automated capability to change entity data or adjust tax accounts as required to process claims, allow tentative carrybacks, abate assessments, post examination or collection activity results, and assess or abate penalties. Finally, the support systems let the district offices and service centers respond more quickly to taxpayer inquiries.

System staffing

Most of the people that support the tax processing system are in the 10 regional service centers. During peak periods, service center employees work three shifts a day. A center's typical staffing will range from around 1,200 employees to over 4,000 during the year. Much of this increase is achieved with part-time and intermittent employees. The major employment categories are Clerks, Data Transcribers, Tax Examiners, Typists, Stenographers, Computer Operators, Machine Operators, Accounting Technicians, and Administrators.

The following tables show the staffing levels for the service centers and NCC. Note that nearly two-thirds of service center permanent employees are assigned to non-pipeline activities.

TABLE 1

IRS SERVICE CENTERS PERSONNEL STRENGTH
(January 1983)

Branch/office	Permanent positions	Other positions (note a)	Total positions
Pipeline Processing			
Receipt and Control	887	1,161 0	2,048.0
Returns Analysis	710	321.2	1,031.2
Input Perfection	884	237.9	1,121.9
Data Conversion	1,040	1,326 0	2,366.0
Computer	857	36.2	893.2
Divisions (Processing; CS&A)	329	45.2	374.2
Total	4,707	3,126.5	7,833.5
Non-Pipeline Processing			
Accounting	1,173	93.4	1,266.4
Research	1,184	335.3	1,519.3
Taxpayer Relations	1,288	203	1,491.0
Adjustment	1,394	179	1,573.0
Examination	1,350	843.3	2,193.3
Criminal Investigation	140	59.5	199.5
Collection	1,139	425.3	1,564.3
Quality Review	112	12	124.0
Windfall Profit	21	5.5	26.5
Divisions (Tax Accounts; Compliance)	247	11.8	258.8
Total	8,148	2,168.1	10,216.1
Other Functions			
Office of Service Center Director	241	8.4	249.4
Personnel	464	107.7	571.7
Facilities	605	691.2	1,296.2
Training & Development	92	8.6	100.6
Security	58	4.6	62.6
Division (Resources Management)	100	17.4	117.4
Total	1,560	837.9	2,395.9
Grand Total	14,315	6,122.5	20,445.5

a/Includes WAEs (when actually employed), part-time and intermittent employees. Figures are expressed as full-time equivalent positions.

TABLE 2

NCC PERSONNEL STRENGTH
(December 1982)

Branch/office	Number of employees
Pipeline Processing	
Operations Division	6
Scheduling Branch	10
Branch A	67
Branch B	85
Branch C	77
Branch D	74
Systems Software Staff	13
Total	332
Non-Pipeline Processing	
Systems Support Division	6
Equipment Management Staff	1
Applications Support Branch	13
Operations Support Branch	17
Processing Validation Branch	18
Capacity Management Branch	8
Total	63
Other Functions	
Office of the Director-NCC	9
Personnel and Training Branch	14
Facilities Management Branch	14
Fiscal Management Branch	2
Total	39
Grand Total	434

IRS' 10 service centers, for the most part, are uniformly organized and staffed. The higher volume centers, such as Fresno and Austin, may have a few more people assigned to the various pipeline and non-pipeline functions. In addition, some centers handle specific returns or programs. For example, the Philadelphia Service Center also processes returns of U.S. taxpayers who reside abroad and other returns which fall under the jurisdiction of the Foreign Operations District, while the Austin Service Center processes all returns filed in connection with the Crude Oil Windfall Profit Tax Act.

Workload structure and volume

The returns processing pipeline is actually a conduit containing more specialized pipelines. While the document flow and controls are generally the same for all documents and

returns flowing through the pipeline, it is structured to process documents by type of return: individual, business, employee plans, and exempt organizations. This basic categorization/breakdown of returns allows more efficient and effective posting of transactions to the master files which have also been structured by type of return: individual master file (IMF), business master file (BMF), and employee plans master file (EPMF). Exempt organization returns are posted to the BMF.

Each specific return category has a more refined breakdown of tax returns. For control, reporting, and management purposes, each is assigned a Program Code. For example, a Form 1040A return is processed under Program 44120, while a Form 1040 Non-Business return is processed under Program 43220. The programs become the basis for placing returns under batch control for pipeline processing. With the help of IRS officials, we identified over 40 program codes which are associated with just tax returns processing. Approximately 120 program codes are used to identify the many different documents, including returns, lists, and reports, which are placed under batch control during service center processing. In total, over 450 program codes are used by service center pipeline and non-pipeline functions to record the many types of work being accomplished in the centers. Additional information about the use of program codes follows in our discussion of the service centers' Integrated Management and Planning Information System. The tables in appendices IV through VI illustrate how the volume of tax returns processed by IRS during 1982 is accounted for by type of return and program code.

When totaling the tax return processing volume, supporting schedules and forms are not usually included. When supporting schedules and forms are considered, another dimension is added to the volume totals. For example, IRS processed over 95 million individual tax returns during 1982. Processing these returns, however, involved over 32 million Schedule As (itemized deductions), over 10 million Schedule Cs (sole proprietorships), over 4.5 million Forms 2441 (child and dependent care credit), and almost 3 million Schedule Fs (Farm income and expenses).

Information from the millions of tax returns and supporting schedules is posted to the master files maintained on magnetic tape at NCC. Table 3 shows the structure and size of the master files. The column "Taxpayer entities" shows the number of taxpayer accounts by type of master file.

TABLE 3

NCC MASTER FILE ACCOUNTS
(July 1982)

No. Accounts (note a)

Type file	Taxpayer entities (note b)	Tax modules (note c)	No. Reels Magnetic Tape (note d)	Average Tape Length For One Account (inches)
IMF	122,341,345	488,516,562	1,200	.18
BMF	23,640,600	209,862,896	567	.50
EPMF	1,484,282	6,024,373	36	.55

a/An account is a tax record on magnetic tape covering three tax
years for IMF and BMF. Unless there is an open item, the
oldest record is removed when the latest tax year's records
are posted to the master file account. Records that are
removed from the master file are maintained on microfilm
(Retention Register). Taxpayer's tax data are identified by
social security number or by employer's identification
number. EPMF accounts, however, contain information back to
1975.

b/An entity module is that portion of the master file record
which identifies the taxpayer. It contains name, address,
social security or employer identification number, employment
code if applicable, name control, location codes, filing
requirement codes, tax period, and date of establishment. In
the case of IMF it also includes filing status, spouse's
name, and social security number.

c/A tax module is the part of a taxpayer's account which
reflects tax data for one class of tax and one tax period.
For example:
1. A taxpayer has filed 3 Forms 1120, 12 Forms 941 and 3
   Forms 940 within a three year period. He has only one
   account on the Master File but 18 tax modules.
2. A taxpayer has filed 3 Forms 1040. There is only one
   account but three tax modules.

d/Data is stored on tape at a density of 6,250 Bits Per Inch.

Generally about 10 percent of the master file accounts are active, meaning that transactions are being posted to the account or the accounts are subject to some type of examination, collection, or adjustment activity.

Many products, such as notices and refund checks, are generated as a result of posting return information to the millions of master file accounts. Tables 4 and 5 show the volumes of refunds and notices issued by IRS during fiscal year 1982 and calendar year 1981 respectively.

TABLE 4

REFUNDS ISSUED BY IRS BY
SERVICE CENTER
(FY 82)

| Service center | No. refunds | Millions ($) | | |
		Principal	Interest	Total
Andover	6,572,634	6,166.1	168.7	6,334.8
Atlanta	7,795,422	6,386.3	121.3	6,507.6
Austin	8,974,652	9,322.6	227.6	9,550.2
Brookhaven	6,078,542	7,047.0	247.4	7,294.4
Cincinnati	6,473,010	6,533.1	156.5	6,689.6
Fresno	8,634,679	9,763.0	229.3	9,992.3
Kansas City	7,590,049	7,634.2	183.2	7,817.4
Memphis	8,331,734	6,826.8	90.0	6,916.8
Ogden	8,056,037	7,781.1	191.8	7.972.9
Philadelphia	5,988,765	5,945.9	179.9	6,125.8
Total	74,495,524	73,406.1	1,795.7	75,201.8

The interest paid as part of the total refund amount results from a number of situations. Most of the interest paid, however, results from audit adjustments and other administrative adjustments which reduce taxpayer's tax liabilities, tentative tax loss carrybacks which reduce taxpayer tax liabilities for prior years, and returns which are not processed through the tax processing system within the required 45 days from the due date. About 25 percent of the total interest paid during fiscal year 1982 resulted from processing time which exceeded the 45 day interest-free period.

TABLE 5

NCC COMPUTER GENERATED NOTICES
(1981)

		Volume	Percent
IMF notices:			
1.	Balance Due Notices	8,981,311	27.0
2.	Overpayment Notices	9,368,365	29.0
3.	Even Notices a/	2,334,515	7.0
4.	Taxpayer Information Notices	6,367,658	19.0
5.	Service Center Notices	4,157,434	13.0
6.	IRP Notices	1,683,367	5.0
	Total	32,892,650	100.0
BMF notices:			
1.	Balance Due Notices	5,366,886	41.0
2.	Overpayment Notices	1,799,832	14.0
3.	Even Notices a/	711,795	5.0
4.	Taxpayer Inquiry Notices	1,525,903	12.0
5.	Service Center Notices	3,588,369	28.0
	Total	12,992,785	100.0

a/A taxpayer owes or is due an amount less than $1. IRS
notifies the taxpayer but does not issue a refund or collect
the additional tax unless requested by the taxpayer.

Collecting and accounting for receipts

The tax processing system is used to both collect and
account for tax revenues. In fiscal year 1982 over $631 billion
in tax revenues were accounted for and posted to master file
accounts. About $112 billion or about 17.8 percent of the tax
receipts were received and processed by IRS' 10 service
centers. The remaining $519 billion was deposited by IRS
district offices and taxpayers directly into a Federal Reserve
Bank or designated commercial bank. About $491 billion of the
$519 billion was collected and reported to IRS via the Federal
Tax Deposit (FTD) System. Under the FTD system, employers make
deposits directly into Treasury tax and loan accounts at
authorized commercial banks or Federal Reserve Banks.

While the bulk of the taxes collected through the FTD
system are employee income tax withholdings, the system is also
used to collect and account for other types of taxes. Corporate
income taxes, excise taxes, and unemployment taxes are deposited

through the FTD system. The frequency of deposits is determined by the type and amount of taxes owed.

For example, IRS requires employers to periodically deposit employment trust fund taxes at a Federal Reserve or approved commercial bank. The frequency of deposits is determined by the amount of taxes withheld. Generally, employers must deposit taxes when the accumulated amount withheld during the month reaches $3,000, or at least once a month if the withheld taxes are over $500. If the quarterly withheld taxes are less than $500, they may be paid with the quarterly employment tax return.

Employers deposit the withheld taxes using an FTD deposit form. Within Treasury, the Bureau of Government Financial Operations furnishes these computer card forms to employers and prepunches the employers' tax identification information, type of tax, and tax period. During 1984, however, IRS plans to assume this responsibility of furnishing FTD forms to taxpayers. Federal Reserve and commercial banks send the deposit forms to the IRS service centers daily. The FTD cards are then processed much like a tax return. The service centers prepare a computer tape of all deposits, which is sent to IRS' NCC. The Center then posts the deposits to the appropriate employer's account. Most deposits are posted within 10 days of the deposit date.

An important point to remember is that while the tax processing system is used to account for all tax receipts, only a small percentage of the revenues, about 18 percent in fiscal year 1982, are actually received by IRS. Most of the revenues are deposited directly into Treasury accounts maintained at a commercial bank or Federal Reserve Bank.

Processing cycles

The workload associated with tax returns processing is accomplished and managed in cycles. Normally, there are 52 posting cycles per year--1 cycle per week--for processing and posting return information to the master files at NCC. Normally, service centers forward transaction tapes to NCC daily where they are accumulated for weekly posting to the respective master file.

Within service centers the term "processing cycle" is used. Processing cycle refers to the number of days taken to process a document through the service center. For example, if a service center takes 8 workdays, including the day of receipt, to process and convert a tax return to good tape and forward it to NCC, the service center's processing cycle for that return is 8 days. Cycle times include the day of receipt as well as the day of final shipment. In the case of payment documents and

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remittance returns, remittance processing time is in addition to the prescribed processing cycle time. Table 6 below shows the maximum processing cycles, in workdays, for documents and returns.

TABLE 6

NORMAL AND EXPEDITE CYCLES
RETURNS AND DOCUMENTS

	Workdays for normal cycle		Workdays for expedite cycle	
	IMF	BMF	IMF	BMF
District office				
1) With-remittance	1	1	1	1
2) Non-remittance	2	2	1	1
Service center				
1) Return				
a) Full Paid	11	16	6	–
b) Other Than Full Paid	11	16	6	6
c) Re-input and reprocessable returns			6	6
2) Other documents- Non-Remittance	11	11	6	6
3) Printouts (Notices) to taxpayers	5	4		
4) Other printing	5	5		
National Computer Center	7	7		

District office and service center operations are supposed to be planned so that these cycle times will not be exceeded. These are maximum cycles and can be shortened whenever it is practical to do so. In addition, some documents and returns, such as prior year returns, master file entity changes, and adjustments, are required to be processed under an expedited cycle. Employee Plan and Exempt Organization returns and documents are to be processed within 4 months of their due date or receipt date, whichever is later.

Some deviation from these cycle times may occur during the peak returns processing period which usually occurs between February and May each year. Timely-filed, calendar year Other Than Full Paid returns received in the service center may be processed under the Stabilized Work Force concept. This means the pipeline workflow will be controlled in a manner that will attempt to stabilize the total work force throughout the peak processing season in order to minimize the shifting of personnel

among the various functions. These returns are no longer required to be processed under the 11- or 16-day cycle constraints; however, program completion dates are supposed to be met. By maintaining and monitoring a backlog of receipts, production can be scheduled to the extent necessary to stabilize the work force and minimize personnel movement. Daily shipments of transaction tapes to NCC are still made, however, during the peak processing periods.

Deposit cycle refers to amount of time taken from the time IRS receives a remittance until it is deposited in a commercial bank or Federal Reserve Bank. Beginning in October 1982, service centers are required to deposit 100 percent of remittance receipts within 1 work day.

COMPUTERIZED APPLICATIONS

At the beginning of our discussion, the tax processing system was defined in terms of pipeline and non-pipeline processing. Again, non-pipeline processing includes other systems or applications that contain selected account information and support various tax administration functions. Most of the non-pipeline functions are carried out by IRS service centers rather than NCC. The service centers currently use three interdependent computer systems to process tax returns and support the many non-pipeline functions/applications. A Direct Data Entry System (DDES) supported by a GE4020 mainframe, is used to convert tax data from paper returns onto magnetic tape. DDES operates in primarily an on-line mode. A Honeywell 2050A mainframe is used to process tax return data received from DDES. The Honeywell 2050A has a multiprogramming capability and operates exclusively in a batch processing mode. Finally, a Control Data Corporation (CDC) 3500 mainframe is used to support IRS' Integrated Data Retrieval System (IDRS). A full discussion of IDRS begins on page 28. The CDC 3500 computer has a multiprogramming capability and operates in both a realtime or interactive mode and a batch processing mode. The realtime mode supports many non-pipeline functions by providing instantaneous retrieval and updating of tax account information via television type terminals. The batch mode is used to update the data base files and produce reports and certain notices. The three systems are not directly linked to one another but exchange information via magnetic tapes. The following tables list the major service-wide support systems or applications that reside on two of the three major computer systems: the Honeywell 2050A "Pipeline" System and the CDC 3500 IDRS. Note that, although it constitutes a major portion of the workload, tax returns processing involves only 5 of the 26 applications supported by the Honeywell system.

TABLE 7

HONEYWELL SYSTEM APPLICATIONS

*1. IMF Mainline Processing
*2. BMF Mainline and Sideline Processing
*3. Service Center Controls System
*4. EPMF/Individual Retirement Account (IRA) Processing
*5. Exempt Organization Master File Processing
 6. Refund Scheme Detection System
 7. FTD System
 8. BMF Magnetic Tape Filing Processing (validation, balancing, and reformatting of employer returns filed on magnetic tape)
 9. Remittance Processing System
10. FTD Penalty Computation Processing
11. Statistics of Income Analysis and Reporting
12. Federal Unemployment Tax Act (FUTA) Federal/State Matching Program
13. Credit Reduction Program processing to recover FUTA loans made to states
14. Information Returns Program (IRP)
15. Performance Costs and Schedules System
16. Service Center Work Plan Processing
17. Workload Scheduling System
18. Production Control and Performance Reporting System
19. Tax Shelter System
20. Control Data Analysis for Inventory Management System
21. Audit Information Management System (AIMS)
22. Project 719, Taxpayer Address Requests processing for
23. Service Center Quality Review System
24. Actuarial Mail File (Andover Service Center only)
25. Centralized Information Item Processing
26. Taxpayer Service Resources Management Information System

*These applications are used for receiving and transcribing tax returns and posting the information to master file accounts. The remaining applications support other tax administration functions.

TABLE 8

IDRS SYSTEM APPLICATIONS

1. Research of tax accounts (IMF, BMF, EPMF, IRAF)
2. Case Assignment and Control
3. Document (Returns, FTDs) and Microfilm Request System
4. On-line Adjustments to tax accounts (IMF, BMF, EPMF, and IRAF)
5. IDRS Transcript Requests
6. Computer generated correspondence processing (approximately 700 proforma letters)
7. Unidentified Remittance File maintenance and processing
8. Quality Review of IDRS Users
9. Balance Due Account processing for collection activities
10. Interest Accrual Computation
11. Delinquent Returns Processing System
12. Area Office Payments Program
13. Daily On-line Transaction Register for Tax Delinquent Investigations (TDIs)/Tax Delinquent Accounts (TDAs)
14. Transaction Security System
15. Refund Information File Maintenance
16. Prior Year Refund File Maintenance
17. Employee Plans/Exempt Organization Application Control System (EAC)
18. Entity Research and Assignment System (ERAs)
19. Computer Assisted Training System for IDRS Users
20. Terminal Usage Reporting System
21. Undelivered Refund Check Processing
22. IDRS Generated Refunds
23. Processing Claims of non-receipt of a refund check
24. Dishonored Check Processing
25. Resources Management Information System
26. Quality Review Management Information System (QMIS) for Field Office
27. Installment Agreements Monitoring System
28. Collection Reports Processing
29. AIMS
30. Intelligence Case Control and Time Reporting System (ICTR)
31. FTD Requests

A discussion of each of these applications is beyond the scope and intent of this chapter. However, brief descriptions of each application are contained in appendices X and XI.

Each of these applications or systems involves a requirements package and a set of computer programs written by IRS' national office programming staff to support the systems processing requirements. In total, about 2,600 computer programs operate on service center and NCC computers to support these service-wide applications. These programs involve over 3.6 million lines of program code.

In addition, each service center may develop programs or systems to meet local management needs. For example, at the Cincinnati Service Center, resident programmers have written about 200 computer programs to support local needs. Also, the service center is using another 85 programs that were developed locally but by another service center's programmers.

IRS' service centers' computer systems use the following operating systems and programming languages.

Computer system	Operating system	Programming language
a) GE 4020 (DDES)	Realtime Multi-programming Operating System (RTMOS); Custom written for IRS	Programmer Assembly Language (PAL)
b) Honeywell H2050A (Pipeline)	OS-2000 Systems, Version 4.01	Easycoder (assembly language) COBOL
c) CDC 3500 IDRS	Master, Version 4.1; Realtime subsystem is called "Marquis"	Compass (assembly language) COBOL

As the flow of tax returns and tax information through the pipeline is described, IRS' supporting computer systems will be discussed.

PIPELINE PROCESSING

Tax returns are initially received at IRS service centers in sealed envelopes. The envelopes are opened and the returns are counted and sorted by type of return. Returns with a remittance, or payment, are separated from those which have no payment included, and the payments are deposited in the bank. The returns are then reviewed, coded, and edited by tax examiners and placed under batch control for computer processing. After the returns are coded and edited, data transcribers key selected data from the returns into the computer. Computer programs subject this data to math and validity checks to determine if the returns are mathematically accurate and all the tax data necessary for processing the returns are present and accurately transcribed. After the returns pass the service center's computer checks, computer tapes containing the return information are sent to NCC in Martinsburg, West Virginia, where the return information is posted to the master file. A computer tape is then produced which lists all accounts requiring communication with the taxpayer, including the math errors identified by the service

center when it processed the returns. The service centers receive this tape, print the notices, and mail these taxpayers the computer-generated notices informing them of the errors or requesting additional information about their accounts. In essence, this is the pipeline process. Following is a more detailed discussion of the pipeline functions beginning at the service center and following the flow of returns and return information to NCC and back to the service center.

Receipt and control

All incoming tax returns and related documents, remittances, and taxpayer correspondence enter the tax processing system via the service center's Receipt and Control Branch, one of the most labor intensive pipeline functions. Here they are received, removed from envelopes, sorted, classified, and prepared for placement under batch control. All remittances are counted, associated with a tax return or related correspondence, and deposited in a Treasury tax and loan account at a Federal Reserve Bank or designated commercial bank. Returns with remittances and returns without remittances follow different processing routes through the branch after the returns have been sorted. The differences will be highlighted in the following discussions.

The service center mailroom serves as the centralized repository for all incoming mail. A mail sorting machine is used to slice open the envelopes and sort the mail by document type. This sort is based on bar codes which have been preprinted on the outside of the envelopes included with tax return packages. Uncoded envelopes are kept together and are referred to as "white mail." Although the volume fluctuates by type return and filing period, taxpayers use the bar coded envelopes for about 65 to 75 percent of the returns.

Bar coded envelopes allow the returns to be machine sorted into the following categories: Form 1040 A; Form 1040 Business or Farm; Form 1040 Non-Business or Farm; Form 1040ES; Forms 940, 941, 942, and 943; Form 720; Form 1120; Form 1065; Form 1120S; Forms 11 series; and correspondence. The effectiveness of the bar coded envelope sort is, of course, contingent on the taxpayer using the appropriate bar coded envelope.

After the mail is sliced open and machine sorted and counted, the bar coded mail as well as the white mail is placed in trays. At this time the contents of the white mail is still unknown. The trayed envelopes are then taken to the Extracting and Sorting function.

Extractors assigned to the Extracting and Sorting unit remove the tax returns and documents from the envelopes and sort them into over 20 categories at "Tingle Tables," a specially

designed table for sorting tax returns and documents. Sorts
are generally based on type of return or document and whether
with, or without, a remittance. It is at this point in the
pipeline that returns begin to be categorized by type of master
file processing and service center program code. After a return
or document has been sorted, the extractor "candles" each
envelope by passing it over a light on the Tingle Table to
ensure that it is empty. Before discarding the envelopes, they
are checked again by an electronic candler as an added
precaution to ensure that no returns, correspondence, or
remittances are overlooked and destroyed.

After the returns and documents have been sorted, the
returns <u>with</u> a remittance go on to the Deposit function while
returns <u>without</u> a remittance go to a batching function. The
remittance returns are given a higher initial processing
priority and are more controlled than non-remittance returns
because (1) money is involved and (2) IRS cash management
initiatives require monies to be deposited into a Treasury bank
account within 24 hours after receipt.

Processing with-remittance
returns and documents

After the initial sorting is completed, the with-remittance
returns and documents are hand-carried to a secondary sort unit
where a more finite sort occurs categorizing the returns and
documents by program code. Next, the with-remittance returns go
to the Deposit activity where they undergo several processing
steps. Here, the checks are examined to determine if they are
negotiable and equal to the amount of payment due as shown on
the tax return. If the checks and return amounts do not agree,
the amount of the remittance is entered on the tax return.
Next, the returns are grouped into work units called "blocks."
Block sizes vary depending on the volume and type of return but
are never more than 100 returns. After the returns are blocked
they go to the Remittance Processing function where each return
and remittance is assigned the same unique 13-digit control
number called a Document Locator Number (DLN), and the checks
are removed from the returns for deposit in a commercial bank or
Federal Reserve Bank. The remittance processing may be
accomplished manually or by an automated system called the
Remittance Processing System. (This system is discussed under
Service Center support systems beginning on p. 34.) About 90
percent of the with-remittance returns are processed by the
automated system.

From the Deposit Activity, the numbered returns are
hand-carried to the Batching function where blocks of the same
type of return are consolidated into "batches" of work. The
blocks, however, remain intact. The batches may include up to
20 blocks of returns but there can be only one program, type of

return, or class of tax in a batch. After a batch of returns is
prepared, a batch transmittal along with key-punched control
cards is prepared to accompany and account for the returns as
they progress through the remaining pipeline functions. The
batch of returns is then placed on a "batch cart" for
transporting the returns throughout the pipeline functions.
From the batching unit, the returns pass through a control clerk
and are transported to the next pipeline function, the Returns
Analysis function.

Processing non-remittance
returns and documents

After being sorted, the non-remittance returns are
hand-carried to the Batching function. The batching procedures
for non-remittance returns are the same as those for
with-remittance returns. The batch volume, however, is an
estimated count rather than an actual count as with remittance
returns. A final count and batching occurs during the next
pipeline function, Returns Analysis.

Returns analysis

Returns Analysis is the first area in the pipeline where
returns are thoroughly examined and made acceptable for computer
processing. This function, known as code and edit, ensures that
certain items are present on the return and that the items are
properly placed and legible. Further, certain codes are entered
on the return which direct the computer to take certain
programmed actions. Returns come into this branch from Receipt
and Control, via the control unit. Although returns come into
the branch grouped by master file type (e.g., IMF, BMF, EPMF),
and are worked by different units within the branch, the
function described above is the same for each unit. In addition
to the code and edit function, the branch performs other
functions including Statistics of Income and Information Returns
Processing. The following paragraphs give a more detailed
explanation of Returns Analysis Branch operations.

Returns Analysis' control unit receives batches of returns
from the Receipt and Control function. This unit controls, logs
in, and accounts for the work flow within the branch and makes
sure that certain documents are released to meet scheduled
service center cycles. The returns are then given to the
appropriate unit--IMF/BMF/etc.--to code and edit. Tax examiners
within the various units sign out sub-batches (referred to as
blocks which contain a maximum of 100 documents), one at a time,
to code and edit.

Tax examiners review each return and its accompanying
schedules to determine if information necessary for processing
is present and legible. Illegible entries are clarified and

misplaced entries are repositioned. For example, some taxpayers may incorrectly show their Federal Income Contributions Act withholdings as income tax withheld. The examiners are expected to correct these kinds of conditions. Unsigned returns and missing Form W-2s are the predominant problems code and edit examiners have to deal with. Examiners also enter codes on the return, such as filing status codes and exemption codes, which are subsequently entered into a computer by data transcribers to allow the computer to calculate a taxpayer's tax liability. Computer condition codes may be used to direct the computer to take certain programmed actions. For example, an "unallowable deduction" code may be entered on a return to refer it for possible audit.

Non-remittance returns processing

While the code and edit process is the same for both with-remittance and non-remittance returns, procedures are different for acquiring information omitted from the return but necessary to continue processing the return. For those returns (except a balance due return) where only the taxpayer can provide the necessary information--missing signature, missing schedule, etc.--that return along with an explanation is sent back to the taxpayer. When the taxpayer furnishes the necessary information, the return re-enters the system as though it had never been filed. Because the tax examiners write a brief description of the data needed in the corner of the return, they can tell what has been requested when it re-enters the system.

If the missing data can be obtained from the service center's Research function (social security number, name, address, tax period), it is not necessary to return the document to the taxpayer. In either case, documents remaining in the block/batch are not held-up while awaiting replies.

When a batch of non-remittance documents is completely edited, the documents are manually numbered and final batched. The documents are then forwarded to Data Conversion through the control unit.

With-remittance returns processing

As mentioned above, the code and edit process is the same for both with-remittance and non-remittance returns. Since with-remittance returns are already numbered when they come to Returns Analysis, they are not returned to the taxpayer when the return is missing needed information. Instead, these returns retain their DLN and remain under batch control. If there is missing or incomplete data, the return will be coded "U" for unprocessable, and "kicked" out of the system. These documents, including ones sent to Research Branch, are handled by the Reject Unit in the Input Perfection function.

In addition to with-remittance returns, returns which have the following characteristics are not sent back to the taxpayer:

--received from an APO address,

--obtained by a revenue officer,

--involves a payment due, or

--is a corporate return.

These returns, with an attached Correspondence Action Sheet, are sent to the Taxpayer Relations Branch for correspondence with the taxpayer. Returns are held in the Branch until a reply is received. When a reply is received, the return, along with the taxpayer response, is sent to the Receipt and Control function where it is put in separate sub-batches and sent directly to code and edit.

Unlike non-remittance documents, when a batch of with-remittance documents is completely edited, it is forwarded directly to Data Conversion through the control staff since the returns have already been numbered and final batched.

Data conversion

Very simply, the Data Conversion function converts information on the paper tax returns and supporting schedules and forms to a format and media suitable for computer processing. This function is supported by the computerized DDES. Using terminals with TV type screens (Cathode Ray Tubes) and a keyboard, data transcribers enter the tax return information into the system. A second data transcriber later enters return information from the same return to either verify the correctness of the original entry or identify input errors. IMF, BMF, and EPMF returns are transcribed by separate groups of transcribers in order to realize the benefits of specialization. The transcribed information is sorted by the DDES and placed on separate IMF, BMF, and EPMF magnetic tapes for subsequent processing by the Honeywell pipeline system. The following discussion describes this data conversion process in more detail.

Batches of tax returns are received on batch carts from the Returns Analysis function. Batch transmittals, as well as control cards, accompany the returns to the control unit in the data conversion function. In the control unit, the batches are accounted for and signed out to the appropriate transcription unit: IMF, BMF, or EPMF.

After the transcription units receive the batches of returns, transcribers enter the return information into the DDES

on a block by block basis. To begin, the "original entry"
transcriber signals the system that the input will be an
original entry and enters information about the block of
returns; the block DLN, batch number, document count, and total
remittance, if any, are entered into the system. Next, the
transcriber inputs tax data from the individual returns. Data
are entered in a specified sequence by section of the return
including its supporting schedules. If an original entry
transcriber recognizes that an error was made while entering the
data, the transcriber can correct the error before releasing the
data from the terminal screen to the computer. Once data from
each return are released to the system, they are stored on
magnetic disks. The DDES computer is programmed to check the
tax class entered and to generate a format code for the
particular document. The format code enables the computer to
validate the input information and tax data which are retained
as a block of documents and temporarily stored on a working disk
while waiting to be verified by a second operation known as "key
verification."

     The key verification operation begins when a second
transcriber inputs a "call" message requesting a specific block
of returns. The computer searches the working disk, locates the
specified block of returns, and signals the operator to begin
verification by entering block descriptive information. After
the computer accepts the block information, the key verification
transcriber begins entering return data in return sequence and
verifying each return section by section. The computer tells
the key verification transcriber what to enter. Generally, it
is not 100 percent of the data the original entry transcriber
entered. Data entered by the key verification transcriber is
matched with data input by the original entry transcriber. If
there are mismatches, they are indicated on the screen and the
key verification transcriber examines the tax return and makes
the correct entry. When the transcriber finishes verifying the
block of documents, the computer moves, or "drains," the
verified data from the working disk to a "dedicated" disk where
they are stored for further processing at the end of the work
shift.

     Meanwhile, the tax data stored on the dedicated magnetic
disk are sorted and reformatted by type of master file
processing - IMF, BMF, EPMF. The data are then converted to
separate IMF, BMF, and EPMF magnetic tapes. As a final step in
the data conversion step, the DDES magnetic tapes are taken to
the Honeywell pipeline system for continued processing.

     After all of the blocks of returns in a batch have been key
verified, the batch is returned to the control unit. The
control unit accounts for the returns, updates the batch
transmittal, and sends the returns to the Input Perfection
function where they are available for research if errors are
identified during subsequent computer processing.

The DDES has one other support system—the automated Remittance Processing System—tied into it. DDES terminals located in the Deposit Activity of the Receipt and Control function are used to record remittance data onto magnetic tape for subsequent processing and posting to master file accounts. Once entered into the pipeline via DDES, the remittance data follows the same processing route as tax return data. (For a discussion of the Remittance Processing System, see p. 34.)

Computer operations

The magnetic tapes from the DDES are controlled by the Support Section of computer operations. The Support Section schedules IMF, BMF, EPMF, and Exempt Organization processing runs. Depending on the time of year and workload, the processing may be done daily or weekly. During the peak processing period, for example, IMF and BMF runs are usually scheduled each day. The primary scheduling criteria are to keep the tax data flowing through the pipeline and meet NCC's processing schedule requirements.

The various processing runs operate on the Honeywell 2050A pipeline computer. During pipeline processing the computer follows detailed instructions, called a program, which enable it to verify the tax computation on each return or to compute the tax liability for the taxpayer. This computer also performs a number of consistency and validity checks on information input from each return or document. Data from most documents satisfy validity checks and math verification and are placed on a "good tape", a record of transactions ready for posting to master file accounts. If information from a document is in error or fails to satisfy any of the programmed checks, transactions are posted to an Error Tape. From transactions on Error Tapes, Error Registers are printed. If a document has been coded "Unprocessable" by an editing tax examiner in the Returns Analysis function, the transaction is posted to a Reject Tape. The unprocessable item will result in the printing of Reject cards. From the Reject cards, a register of all rejected items is printed. The Error Registers and Reject Registers will be forwarded to the Input Perfection function to be corrected for reprocessing. The IMF, BMF, and EPMF good tape transactions are reformatted for master file posting by a final computer processing step called Tape Edit Processing and are shipped daily via airmail to NCC.

Error and reject resolution

Error and reject resolution involves correcting errors and processing previously rejected documents. Working with registers and documents, tax examiners assigned to the Input Perfection function resolve and correct error conditions which

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have been identified by the computer. These errors may have been caused either by the taxpayer, by tax examiners assigned to the code and edit function, or by DDES data transcribers. Rejected documents are those which were coded U in Returns Analysis. Further, rejects may include documents rejected by error correction tax examiners. When the error or reject conditions are corrected, the registers are forwarded to Data Conversion where the corrections are input again into the DDES. The initial correction cycle generally takes about 1 day. A more detailed description of the error and reject resolution function follows.

Error resolution

After returns and documents are transcribed, the new data is entered into the Service Center computer (H2050) which performs validity and consistency checks and mathematically verifies the taxpayer's computations. If the data passes all required checks, it is placed on good tape for transmittal to NCC. If the data does not pass all required checks, it is placed on an error tape from which error registers are printed.

An error register is printed for each batch of returns. In addition, the error register is printed by return section (e.g., entity, filing status, exemptions) and contains information that identifies the location of the error document. Errors are denoted by symbols, or error reason codes, and by corrected amounts printed under incorrect amounts.

Tax examiners associate the actual return with the register and identify the error, then correct the error on the return or document and on the register. Action codes are entered on the register which, after transcription, will direct the computer to add, change, or delete information. If the error was a taxpayer error, the examiner must also enter a notice code on the return and the register. This will cause the computer to generate a notice of correction during master file processing to be sent to the taxpayer. Over 400 notice codes are used to generate explanatory notices to taxpayers. For example, Notice Code 18 informs taxpayers that a portion of their refund is being withheld due to an unallowable item on the return. When a return contains an unprocessable condition, a reject action code is entered on the error register causing data for that return to be printed on a reject register. After error registers have been corrected, they are forwarded to Data Conversion for reinput of data for conversion to good tape. The returns are held until all items have been cleared from an error register; then they are sent to the files for storage.

Reject resolution

Returns that appear on the reject register were coded unprocessable by Returns Analysis examiners or Error Correction examiners. Many of these returns require contact with the taxpayer.

Each unprocessable return is assigned an identifying reject sequence number as it is printed on the reject register. The register and related return are associated and given to examiners to work. When correction of a return requires contact with the taxpayer, a correspondence action sheet is prepared identifying needed information. A letter is sent to the taxpayer requesting the needed information. If the unprocessable condition can be resolved with information available at the service center, a request for research is prepared.

The returns and registers are held in a reject suspense file while awaiting information from either the taxpayer or from within the service center. When the information is received, the return and the register are corrected. Corrected reject registers are forwarded to Data Conversion for transcription. When the corrections are complete, the data goes to good tape and the documents are forwarded to the files for storage.

On occasion, reject conditions cannot be corrected by the examiner. Examples of these uncorrectable conditions include

--current year return in a prior year program,

--prior year return in a current year program,

--incorrect DLN transcription on the reject register, or

--incorrect or missing transcription amount.

In these situations, the transaction is voided from the reject tape, the return or document is corrected and a re-entry document is attached to the original document. The original and re-entry documents are forwarded to Batching for reprocessing through the system. Sometimes the documents are reclassified and assigned a new DLN for processing. As soon as the items are corrected and they pass all the computer checks, they are placed on good tape for transmittal to NCC.

NCC operations

NCC creates and updates the master files, magnetic tape records of all taxpayer accounts. As shown on page 7, IRS' master files are maintained on about 1,800 reels of magnetic tape. NCC maintains four current sets of the complete master

file. In total, NCC's tape library contains over 178,000 reels of tape.

Service centers ship transaction tapes to NCC on a daily basis. The tapes are picked up by courier at the two airports in the Washington, D.C. area and transported to Martinsburg. On the average, about 3,500 tapes flow between NCC and the 10 service centers each week. During the first 6 months of 1982, these shipments ranged from a high of 6,570 reels to a low of 2,764 reels.

Prior to November 1982, the master file posting process was accomplished by six IBM 360/65 computers and two IBM 370 computers. During the peak 1982 processing period, IMF and BMF weekly processing required about 396 hours and 227 hours, respectively, on these machines. During November 1982 NCC replaced the six IBM 360/65s and one IBM 370 with an NAS (Hitachi) 9060 computer. This replacement is part of IRS' Equipment Replacement Program discussed on page 62. NCC officials expect processing time to be reduced somewhat due to the speed and efficiency of the newer computer.

NCC is a tape oriented, batch processing facility which receives its input from the service centers. The good transaction tapes are accumulated, merged, and sorted into account number sequence either by social security number for individual taxpayer accounts or by employer identification number for business taxpayer accounts. The transaction tapes--IMF, BMF, and EPMF--are then passed against their respective entity file to identify accounts that need to be moved onto the active file for subsequent posting. The transaction tapes are then posted to the master files. During this posting process, each account on the merged transaction tape is analyzed by the computer as it updates account data, adds tax modules to existing accounts, adds new accounts, or determines that transactions cannot be posted to an existing account. IRS presently retains all transaction tapes for 3 years and plans to expand this to 5 years in the near future.

Three digit Transaction Codes are used to identify transactions being processed and to maintain a history of actions posted to a taxpayers account on the master file. Every transaction processed by the tax processing system must contain a transaction code to maintain accounting controls, to cause the NCC computer to post the transaction to the master file, to permit reports to be compiled, and to identify transactions when an account transcript is extracted from the master file. Transaction codes unique to IDRS also can be identified on the master file. In total, about 340 transaction codes are used to post information to the master files. For example, transaction code 180 is used to post a penalty assessment to a BMF account for insufficient and/or untimely FTD tax deposits. Transaction

code 150 is used to post filed tax return data to the master
file.

In the process of updating master file accounts, several
outputs are produced. Refund tapes, for instance, are prepared
and shipped to the Regional Disbursing Offices of the Bureau of
Government Financial Operations for preparing taxpayer refund
checks. (See p. 8.) A number of other output tapes produced
for printout at the service center. One of these is an
Unpostable tape which is a record of all transactions which, for
some reason, are not accepted by the computer for posting to an
existing taxpayer account or for establishing a new account.
Another is the Notice tape which shows all accounts requiring
communication with the taxpayer as a result of posting certain
transactions to the master file account or of an analysis of the
account status.

In addition, other products result from master file
posting. NCC transcripts, or reproductions, of posted records
which have been requested by service center staff for research
purposes are generated on magnetic tape for printing at the
service centers. Also produced are discriminate function (DIF)
inventory files tapes which identify returns that have audit
potential. These products are discussed in more detail in
chapter 5. Also, various accounting and operating reports are
produced. In addition, during NCC processing some entity
information and posting data is extracted from the Master File
and converted to microfilm for various uses in the service
center and district offices. In summary, then, NCC posts
transactions to master file accounts and generates data for a
variety of uses.

After the master file posting is complete, the computer
sorts the output products by service center and generates tapes
to be returned to the 10 service centers as well as refund tapes
to be sent to the 7 Regional Disbursing Centers that support
IRS' workload. The tapes are taken to the airports and sent
to the service centers and disbursing centers.

Processing NCC output tapes

Service center computer operations receive the NCC output
tapes. The various tapes are then processed on the Honeywell
pipeline system or the IDRS while notice tapes go directly to
printing. The unpostables tape is processed on the pipeline
system and an unpostables register is printed and sent to the
Unpostables unit of the Input Perfection function. Tapes
containing taxpayer refund data, account transcripts, and
taxpayer delinquent accounts and investigation data are
processed on the IDRS system to update the various files and
support non-pipeline tax administration functions.

Unpostables resolution and
entity control

Some transactions are rejected by the computer at
Martinsburg when they attempt to update the master file. For
example, if the taxpayer's social security number cannot be
found on the master file, and there is insufficient information
to establish a new account, the transaction will reject. These
are known as Unpostables. There are 220 unpostable codes used
to identify the unpostable conditions possible.

During 1982, less than 4 percent of the returns processed
by the Cincinnati Service Center were rejected as unpostable.
For each weekly posting cycle, the service centers receive a
tape of all unpostable transactions. From this, an Unpostable
Register is printed in DLN sequence, with old unresolved
transactions listed first, followed by the new, unpostable
transactions. At the same time, Unpostable Cards are prepared
for each unpostable item. These contain the DLN, the social
security or employer identification number, the name control,
the class of tax, the transaction which would not post to a
master file account, and an unpostable code identifying the
condition causing the transaction to be unpostable. These cards
are screened to identify transactions that can be corrected
without examining the original return. The others are forwarded
to Research where the return with the corresponding DLN is
pulled and attached.

In the Unpostables Section of the Input Perfection
function, tax examiners compare information on the Unpostable
Card with that on the input document in an effort to resolve the
unpostable condition. Frequently, it will be necessary to
request a search of directories or the posting data on microfilm
records for the needed information. Occasionally, it may be
necessary to obtain additional or clarifying information from
the taxpayer by telephone or letter. When the problem is
identified, the unpostable condition may be resolved by
correcting the Unpostable Card and entering an Action Code which
will indicate to the computer the action to be taken. The
corrected unpostable registers and cards are then sent to the
Data Conversion function for re-input to the system. Each
service center is responsible for maintaining a complete record
on tape of all unresolved unpostables originating from the
service center. New unpostable items are added and corrected
items are deleted from this tape.

A work operation closely related to unpostable problems is
entity control. The Entity Control Section of the Input
Perfection function resolves account identification problems
when a return or document will not post to a master file.
Generally, the problems are resolved by assigning the taxpayer a
new identification number or correcting the master file entity
module.

OTHER SERVICE CENTER SUPPORT SYSTEMS

IRS service center personnel rely on several computer based systems to help them carry out and manage non-pipeline functions. These systems include the IDRS, the Integrated Management and Planning Information System, the Remittance Processing System, and the Microfilm Research System.

Foremost among these support systems is the IDRS which supports over 30 applications and is heavily used by district offices as well as service center personnel. The integrated nature of IDRS' data files is the key to its multifunctional uses. Least automated of these systems is the Microfilm Research System. This system is included in our discussion due to significant changes underway to automate the microfilm research function. A discussion of each system follows.

IDRS

IDRS was developed to provide instantaneous visual access to up-to-date taxpayer account information. Used primarily as a realtime data retrieval/update system, IDRS consists of a CDC 3500 Computer System with peripheral equipment. The realtime component of IDRS includes about 4,100 on-line terminals nationwide. With IDRS, service centers and district offices are connected to a specially created data base whose content is based on the probability that an inquiry for a particular account will occur. The data base typically contains about 10 percent of the taxpayer accounts for which a service center is responsible.

IDRS is used as a taxpayer service tool by many activities within IRS, such as Collection, Taxpayer Service, Criminal Investigation, and Examination. An important benefit of IDRS is that it provides consistency and currency of data to all users. This is especially important when processing tax accounts with multiple errors, in that one activity can interrogate an account to determine what actions have been initiated by another activity, thus eliminating duplication of effort and providing a means of communication within IRS.

Through the 4,100 terminals, authorized service center, district office, and local office employees can

--instantaneously access and research a taxpayer's account,

--view the recorded data on a visual display screen and generate a printout,

--change the recorded data for entity changes and adjustments,

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--cause taxpayer notices of various kinds to be mailed,

--request original tax returns or photocopies, and

--have records for almost any taxpayer placed on the system.

Although originally planned as a system for providing immediate information to respond to taxpayer requests about their accounts or return status, the system now aids the compliance effort and, as such, is a deterrent to delinquency. This is accomplished by

--having IDRS, rather than enforcement personnel, monitor and follow-up delinquent accounts whose collections are in a suspended status for any number of reasons, such as adjustments, court action, and military deferment;

--posting current information to the IDRS files immediately, thereby crediting a payment to the taxpayer's account on the day it is received;

--having immediate accessibility of information on the status of a taxpayer's account; and

--providing a wide spectrum of management information on the nature and characteristics of delinquent taxpayers.

The IDRS data base consists of 290 files including various terminal and employee profile security files. Descriptions of some of the more common files are listed below.

1. Account Number File - This file is the primary data base for IDRS. It contains data on Balance Due Accounts, Problem Accounts, TDAs, TDIs, and any other active case being worked in a district office or the service center.

2. Name and Address File - This file contains name, addresses and other entity data which is not included on the Account Number File. Some accounts on the Account Number File will not have a corresponding Name and Address File record. These include "dummy" accounts established for control purposes.

3. TDI Notice File (TDINF) - This file contains information relating to delinquency investigations and the generation of delinquency notices.

4. Delinquent Investigation Research File (DIRF) - This file is a research file created from the TDINF after weekly TDI analysis.

5. **Unidentified Remittance File (URF)** - This file contains an information record of each remittance which is received but cannot be positively identified. This file helps district office and service center personnel associate remittances with the correct taxpayers.

6. **Refund Information File (RFIF)** - This file contains abbreviated records of information from IMF tax modules for refund returns for the latest full calendar year tax period. It does not have records for full paid error free returns. Basically, this file provides the status and amount of tax refunds. The RFIF can be retained up to 1 year after the current processing year. When it is retained, it becomes the Prior Year Refund Information File.

7. **Employer Identification Number Name and Address File (ENAF)** - This file contains employers which have been issued an EIN and have not yet been established on a master file. The entity data on this file is very similar to other IDRS NAFs; data elements unique to the ENAF include master file indicator, wages paid date, business operational date, and notice information. The ENAF can only be queried with name and address information. There is no corresponding ANF record for ENAF entities.

8. **Dishonored Check File (DCF)** - This file contains a record of the dishonored checks returned to the service center by banks. The record will remain on the file until research positively identifies the tax module which was credited when the check was originally received. Once identified, an entry is made to the file which will cause a debit transaction to be generated and sent to the master file. A notice will also be generated to notify the taxpayer.

9. **Plan Case Control File (PCCF)** - This file contains the complete information required to control applications from Employee Pension Plans and Exempt Organizations. The information includes plan characteristics, entity information, name and address, controlling information such as a status assignment, and final disposition of the application.

IDRS files are used for a multitude of applications. Of the 31 major IDRS applications (see app. XI), 5 account for about 75 percent of the realtime transactions. These are: (1) research of tax accounts, (2) case assignment and control, (3) on-line adjustments to tax accounts, (4) computer generated correspondence processing, and (5) AIMS. The research function is, by far, the most frequently used application accounting for about 50 percent of the realtime transactions.

The management of IDRS data files is the responsibility of the IDRS Data Files Manager and the IDRS Control Group in the service center in conjunction with the IDRS Data Files Manager at the National Office. This management function involves (1) monitoring and controlling the data and access to the data on IDRS files and (2) maintaining the integrity of the data files by implementing timely corrective action, coordinating file clean-ups, and ensuring that system recovery procedures are in place.

Since its inception in 1971, the growth of realtime transaction volume on IDRS has been significant. This growth can be attributed to normal tax return growth, legislation requiring new or improved services, and internally mandated programs. The high growth rate is the cause of several problems with the current IDRS. These problems include

--slower than desired response times and

--hardware limitations which make further enhancements or system upgrades to accommodate new major legislated programs as well as expected future workloads very difficult.

Because of workload saturation, IRS will replace the system with a realtime on-line capability which will be a part of the Service Center Replacement System discussed on page 63.

Integrated Management Planning
Information System (IMPIS)

IMPIS comprises several component systems which provide IRS managers with information necessary for planning, scheduling, controlling, and measuring the workload and resource usage of service centers. Toward this end, the system

--prescribes methods and tools for planning, measuring and controlling the workload and staff;

--integrates the tools in a way that provides information for determining staff needs and prepares plans to meet the needs;

--provides a means for appraising employee performance and determining the variance between actual and planned work; and

--conceptually provides a common basis for comparing the productivity of the 10 service centers.

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An important feature of IMPIS is the numeric code structure used to identify the organization levels in the service centers, the functions performed in the centers, and the programs which constitute the workload. By using common Organization, Function, and Program (OFP) codes throughout the generally uniform service centers, IMPIS is able to collect and report information showing where work has been accomplished (organization); identifying the work actions (functions) necessary to complete the work; and identifying the specific programs which made up the workload. In addition, the information coupled with when the work was accomplished provides historical data for planning and forecasting.

IMPIS encompasses three component systems: (1) Work Planning and Control (WP&C), (2) Production Control, and (3) Individual Employee Performance. Although each of these component systems has a different primary objective, certain data elements in one system directly relate to the other systems. For example, staffhours reported for Individual Employee Performance are used in WP&C reports, while volumes used for WP&C reports are also used for Individual Employee Performance.

A description of the various IMPIS component systems follows.

WP&C

The WP&C system is one of the major component systems contained within IMPIS. Its primary objective is to relate workload to staff resources. The system is designed to provide management with information to determine staffpower needs and to prepare plans to justify those needs. It also provides for distributing workload and staffpower within the time span to meet target dates, as well as provide for appraising performance and determining actual work accomplished.

The service centers require long range estimates or forecasts of workload and staffpower to obtain budget support, short range refinements of the forecasts to properly allocate resources, and quantitative measurements of work actually accomplished. To satisfy these needs, the WP&C provides

--work plans to indicate what work will be done and the resources required to accomplish the work;

--work schedules to indicate when work projected in the work plan will be accomplished, to provide a basis for assigning employees by skills, and provide a basis for periodically analyzing the variance between actual and scheduled work; and

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--performance reports to reflect actual workload
accomplished, resources expended, and the service
center's success in meeting the work schedule.

IRS' National Office uses various performance and cost re-
ports to budget, monitor, and evaluate service center oper-
ations. The information provided in these reports serve as a
base in planning future resource requirements, analyzing work-
load scheduling, extrapolating major program costs, and tracking
resource expenditures against planned funding. The reports
include the following

--Managers Report - an evaluative tool for service center
managers which compares schedule or projected data with
actual production,

--Program Analysis Report - an evaluative tool for service
center managers which reflects all volume and staff-hour
data reported in the IMPIS, and

--Abstract Report - an aid in future planning and
scheduling.

Service Center Production Control

The Service Center Production Control System, another com-
ponent of IMPIS, provides uniform day-to-day control and routing
of service center workloads in both pipeline and non-pipeline
operations. The system also provides production reporting for
the many service center programs which provides managers with
information to ensure that production processing is meeting or
will meet the required cycle or desired completion date.

Inputs to this system include a Batch Control Card which is
used to input volumes of work units completed by pipeline pro-
grams and functions such as numbering, code and edit, and error
correction. A Unit Production Card is used to input volume of
work units for non-pipeline programs.

Outputs from this system include the Daily Production Re-
port and the Batch Profile Report. The Daily Production Report
shows daily scheduled and actual production and is used to
monitor each days production as it flows through the various
functions and processes within the service center. The report
also provides cumulative production, as well as inventory data,
and reflects actual to scheduled production on which staffing
requirements were developed. The Batch Profile Report reflects
the location of batches of work by program in the pipeline
functions on any given day and is a means of identifying and
tracking behind schedule or expedite batches. The Batch Profile
Report also is an important process control in that it ensures

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that batches of work, which may contain up to 2,000 documents, are not lost once they enter the pipeline.

Service Center Individual Performance Reporting

The Service Center Individual Performance Reporting System is the third component of IMPIS. This system provides local service center management with a means for evaluating employees performing measurable work, and also establishes a uniform system for reporting all staffhours required for the Performance and Cost Report. In addition, other outputs summarize service center performance by organization and by branch. For example, both volumes and error rates are reported for each DDES terminal operator as well as the Data Conversion Branch.

Remittance Processing System

The Remittance Processing System (RPS) is a multifunctional system, combining both equipment and procedures, which automates the deposit of remittances and the control of source documents. RPS is in the service center's Receipt and Control function. RPS computerizes the recapitulation of each days deposit information while simultaneously preparing tapes to post credits to taxpayer accounts. There are four categories of payment documents processed through RPS: (1) tax returns, (2) subsequent payments, (3) estimated tax payment vouchers, and (4) extensions of time to file tax returns accompanied with tax payment. Remittances to be processed are limited to the IMF, BMF and the IRAF. Documents excluded from RPS and processed manually involve single remittances with portions applied to different accounts (split remittances); more than one check to be applied to a single account (multiple); foreign remittances; unidentified remittances; and non-master file returns such as Alcohol, Tobacco and Firearms tax returns. During September 1982, service centers processed more than 95 percent of their remittance volume through RPS.

Documents with remittances are processed at a multifunctional work station called a Remittance Processing Device (RPD). Each RPD includes a Key Station Terminal, a Remittance Printer, a Tax Document Printer, and a message/control display panel. The RPD is controlled by the GE4020 Direct Data Entry computer. The DDES programs have been modified to accept RPS data through dedicated communication couplers and the associated Key Station Terminals. The DDES accumulates RPS block amount and document count totals, conducts validity and consistency checks of RPS data, transmits special RPS messages and prompts to RPD operators, produces a separate tape for RPS payments, and generates a deposit totals tape. Subsequent processing on the H2050A pipeline computer produces documentation for the deposit

and balancing of revenues and records a payment transaction to be posted to the appropriate master file.

RPS data entry

RPS data entry is accomplished in three phases which include Original Entry, Validation and Key Verification, and Remittance Processing. Each phase is described below.

Original Entry consists of transcribing data from input documents and remittances, checking for validity of combination (i.e., tax class, document code, transaction code, and master file transaction) and sequence checking document serial numbers.

Validation is accomplished by the computer. It consists of the computer validating employer identification numbers or social security numbers by using a check digit.

Key Verification and Remittance Processing is, in effect, a duplication of the original entry input except that if there is a difference between the original entry input and the key verification input, the key verification operator can make corrections as necessary.

An RPD consists of three separate printing and forms handling units: the Remittance Printer; Tax Document Printer; and Register Printer. Each unit performs a different function in the overall process. The Remittance Printer will encode the dollar and cents amount on the remittance submitted by the taxpayer. It will also stamp an endorsement on the rear side and print an audit trail beneath the stamp consisting of the Document Locator Number (DLN), date, tax period, and transaction code. The remittances are automatically stacked in a pocket stacker for easy retrieval when a block is finished. The Tax Document Printer prints the DLN and dollar and cents amount on the tax form. Again there is a document stacker that automatically stacks the tax forms in the same order as they were inserted. It is within easy reach of the operator for document retrieval when the batch is complete. The Register Printer maintains a log (register) of each transaction, whether or not tax form or remittance printing takes place. Multi-part paper is used to provide an original and two copies of the register. Each line of data represents a single transaction processed by the RPD. The original copy of the register is sent to the bank as a deposit tally. The printers have been assembled to form a work station with ease of operator control a prime consideration.

Once processing is complete, documents (checks, register listings) are sent to the Reconciling Unit where examiners ensure that each document is in balance and prepare the remittances for deposit with the bank.

Microfilm Research System

The Microfilm Research System supports every major operation in IRS' service centers and district offices. As such, it is a valuable tool available and used throughout IRS. Microfilm is used to obtain information for supporting contacts with taxpayers and for correctly processing returns and documents and posting them to the master file. Microfilm is transaction oriented since it provides a record of transactions posted to master file accounts during each NCC posting cycle.

NCC converts selected information from the master files to microfilm tape and provides copies to service centers for the accounts they service. Each service center receives the master tape and reproduces copies for the service center and the district offices. There are two basic types of information on microfilm: (1) the names of taxpayers on the master file and (2) tax transactions posted to taxpayer accounts. This information, however, is found on several separate registers or directories.

Name Directory

Individual taxpayers are listed in IMF Name Directories (Alpha Registers) in alphabetic order with social security number, address, and other entity information including the year the account was established on the master file and whether the social security number is valid or invalid. BMF Name Directories contain an alphabetic listing of all businesses in the name of the owner and trade name together with the employer identification number, address, and filing requirements. Alpha Registers are produced weekly for each district.

Accounts Register

Accounts Registers are prepared in either social security number or employer identification number sequence for each master file. The Accounts Registers contain records of transactions posted to taxpayer accounts during specified time periods. By using the Accounts Register, the researcher will be able to locate a specific taxpayer's account. Other information available from the Accounts Register includes payments that have been posted to the taxpayer's account, DLN, and the module balance. Accounts Registers are numbered by cycle and are produced weekly for each district.

Reference and Retention Registers

Two tools are available for research which serve as guides to data on prior Accounts Registers as well as prior Name Directories. They are the Reference Register and Retention Register. The Reference Register is a guide to information contained on prior Accounts Registers. This register is updated every 4 weeks. The taxpayer's identification number is in numeric order, followed by the taxpayer's name control, when the entity was established, tax periods filed, and where they can be located on the Accounts Register. The format and information contained on the Retention Register is identical to the Accounts Register. This Register contains all entities and tax modules removed from the master file. The tax module must be in zero balance, have no freeze codes or unsettled conditions present, and have had no activity for a period of 27 months.

FTD registers

Also available on microfilm are three registers containing FTDs received by IRS. All three registers contain the same information. One register is by remittance amount, another is in alphabetical name control order, and the third is in numeric order by business employer identification number.

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CHAPTER 2

TAX PROCESSING SYSTEM DATA RELIABILITY CONTROLS

IRS has a huge and vital mission with the responsibility for receiving and accounting for all tax returns and about 90 percent of all Federal receipts. Given this processing volume, the size of the revenues involved, the number of tax accounts involved, and IRS' accountability to taxpayers, the internal controls incorporated into the tax processing system must be effective to ensure that complete, accurate, and timely information is processed and posted to taxpayer accounts. Reliable tax data is critical to IRS' mission.

SPECIAL CONCERNS FOR TAX ADMINISTRATION

IRS needs to be especially concerned about the reliability of the information processed and generated by its tax processing system for a number of reasons. First and foremost is the taxpayers' interest in the amount of taxes they pay and their concern that they are being treated equitably by the tax laws and IRS. This interest places continuing pressure on the Service to process tax returns accurately. In a sense, every tax return processed tests the credibility of the system since the tax form is the main source of communication between taxpayers and IRS. Likewise, IRS' primary means of initially communicating with taxpayers is via computer-issued notices that are generated by the tax processing system. Untimely returns processing, erroneous requests for additional information, and inappropriate computer generated notices which can result from unreliable data controls all can have an adverse impact on IRS' credibility.

If IRS' credibility were questioned, particularly for a prolonged period, the situation could have far reaching effects. A widespread public perception that IRS has an ineffective and untimely system for processing tax returns would exacerbate the already growing problem of taxpayer noncompliance. This emerging problem, coupled with the complexity of the tax laws and tax forms, will continue to test the credibility of a tax processing system in which there is a high potential for fraud and taxpayer error. While data reliability controls cannot resolve the noncompliance problems of non-filing and unreported income, they may be increasingly relied on to identify incorrect tax returns and, thereby, promote compliance with the tax laws. Further, IRS expects the role of computers for processing tax returns and measuring compliance to grow as it seeks new ways to further automate the tax processing system.

Notwithstanding the difficulties of managing a stable tax processing system, the changing nature of the tax law and tax forms, as well as IRS administrative changes, present a

continuing challenge to IRS managers to maintain effective controls. For example, the Economic Recovery Tax Act of 1981 made significant changes to the tax laws either adding to, amending, or repealing over a hundred sections of the Internal Revenue Code. The changes were many, including across-the-board tax rate reductions for individuals, marriage penalty tax relief for working couples, a new accelerated depreciation system for business, savings incentives for investors, and extensive estate and gift tax changes. Not only were there many changes to the law, but the implementation dates were varied and scheduled over several years. In 1982 the Tax Equity and Fiscal Responsibility Act brought about even more across-the-board changes to the tax law affecting individual, business, and corporate returns. Each time the tax law changes, IRS must respond quickly and effectively to evaluate the nature of the change and ensure that updated and correct procedures and data controls are incorporated into the tax processing system.

Administrative and internal management changes can also affect data reliability controls. The Equipment Replacement Program as well as the conversion of computer programs to a new language will affect present controls as will new systems designed to provide better controls. The challenge will be to implement such changes while making sure that data reliability is not adversely affected.

DATA RELIABILITY CONTROLS

The tax processing system contains a formidable network of controls. The intent of this chapter is to provide a perspective for these controls by describing them, explaining where they are found in the system, and laying the groundwork for conducting a "transaction flow analysis." To provide a framework for discussion, we have placed data reliability controls in three general categories: (1) general management controls, (2) process controls, and (3) ADP controls. There will be instances, however, where manual process controls and ADP controls work together to provide a control. To the extent possible these situations will be identified. The approach used to identify the controls as well as the overall scope of controls discussed in the following sections is based on our audit guide, Evaluating Internal Controls In Computer - Based Systems.

General management controls

There are a number of top management controls and general controls over the data processing functions to ensure that the integrity of the processing system and its products is maintained. These controls are designed to assess how well the system is functioning, where improvements are needed, and what capabilities will be needed in the future and include policy

statements, an Automation Policy Board, internal audits, external reviews, organizational specialization and separation of duties, personnel background checks, physical facility controls, and ADP Systems Acceptability Testing conducted by a separate IRS organizational component. In addition, IRS has a process and procedures for identifying and responding systematically to changes in the tax law.

Policy statements

IRS has recently adopted two policy statements which address internal controls and computer safeguards issues. Policy statement P-1-144, approved in November 1982, requires "employees who design computer systems" to make sure that the systems are protected from "abuse, fraud, or disruption." The statement points out that the "Service relies heavily on automatic data processing systems" and that these systems must be "afforded adequate physical, procedural, and systemic protection." A related but more general policy statement, P-1-145, was also approved during November 1982 and states that

> "Management at all levels will maintain effective controls to prevent fraud, waste or abuse of Government resources and mismanagement of Service programs. The control systems will provide reasonable assurance that all resources are safe-guarded from unauthorized use or disposition."

The policy statement also stipulates that control standards for systems should include provisions for (1) documentation, (2) transaction authorization and classification, (3) separation-of-duties, (4) supervision, (5) access to resources, (6) competent personnel, (7) achievements of system objectives, and (8) reports of violations of the internal controls. These standards are almost a verbatim restatement of the standards included in OMB Circular A-123 which requires them at all Federal agencies.

Automation Policy Board

A number of general controls are in place which facilitate support of the above policy statements. IRS' Automation Policy Board, formerly called the ADP Policy/Resource Board, is responsible for budgeting and controlling the agency's overall computer needs and for serving as the focal point for making policy decisions on all ADP matters. The Board is also responsible for setting priorities for the use of ADP resources by formulating a coordinated servicewide long-range plan based on requests submitted by Board members. The Board is chaired by IRS' Deputy Commissioner and is comprised of IRS' top managers who represent all functional components. (For a more detailed discussion about the role and make-up of the Board see ch. 6, p. 146.)

Internal Audit

IRS has an Internal Audit Division which conducts independent reviews, prepares reports on its findings, and reports directly to the IRS Commissioner. The Internal Audit staff is comprised of both generalists and specialists who address "internal controls" as well as other ADP issues.

Internal controls and data reliability issues are generally reviewed from two approaches. Internal Audit staff assigned to field locations, such as a service center, examine various aspects of the tax processing system from a functional perspective, such as returns processing or collection, rather than from a perspective limited to ADP systems. These audits typically include, however, a data reliability assessment. From an overall standpoint, IRS Internal Audit staff conduct an annual nationally coordinated audit of Forms 1040 processing which evaluates system controls, data reliability, and the processing system's effectiveness in promoting compliance. These reviews usually involve audit work in at least three service centers.

The Internal Audit Division includes a Data Processing Activities Branch which is responsible for most of the ADP related audits conducted by Internal Audit. The branch is comprised of two groups: an audit group and a technical assistance group. Within the technical assistance group are programmers, system analysts, and other personnel which specialize in areas such as ADP hardware and operating systems. The ADP Activities Branch has completed audits which address issues dealing with procurement, equipment requirements, system design efforts, and software conversion projects. For example, the audit work conducted on IRS' large Equipment Replacement Program is discussed on page 71.

Organizational specialization and separation of duties

A key organizational control involves separation of duties so that no one function or employee controls the handling and recording of a transaction from beginning to end. Typically, separation of duties involves more specialization among an organization's functional components.

From an overall IRS perspective, tax processing duties are divided by

--separating the Data Processing function from other IRS functions;

--separating different data processing functions under the
   Associate Commissioner for Data Processing, both
   organizationally and geographically; and

--providing for separation of duties within the operational
   divisions and policy and management divisions that rely
   on support from the Data Processing function.

Overall, IRS' organizational structure provides a fairly
clear delineation of ADP functions and duties as well as a
controlled working environment. This is particularly true in
service centers. In addition, there is a very clear division of
duties among the many functions that support tax returns
processing. The tax processing system pipeline flowchart shown
in appendix III clearly illustrates the division of duties among
pipeline functions as well as the geographical separation
between the processing functions and the master file maintenance
function. A more detailed discussion of separation of duties
follows in the discussion of computer controls.

Personnel background checks

IRS relies heavily on its employees to support the tax
processing system and to maintain the integrity of the tax
return data that passes through the many processing functions.
Recognizing this, IRS requires a background investigation for
each employee. The scope of an employee background
investigation varies depending on the degree of adverse effect
his/her position could cause to national security or the degree
of trust inherent in a position.

To address the differences in job responsibilities and
trust, IRS designates each position as either (1) critical -
sensitive, (2) non-critical - sensitive, (3) non-sensitive -
specified, or (4) non-sensitive - non-specified. Employees
assigned to critical - sensitive positions receive a more
thorough investigation than employees assigned to non-sensitive
- non-specified positions. For example, data transcribers are
assigned non-sensitive - non-specified status and receive a
National Agency Check and Inquiry (NACI) investigation, the
least comprehensive background investigation. A service center
director is assigned a critical - sensitive status and receives
the most comprehensive security investigation.

Physical facility controls

Along with the functional separation of duties throughout
IRS, the facilities that support the tax processing system
incorporate access controls as well as physically provide for
the control and movement of tax data and personnel. Many of the
pipeline functions use limited access procedures to control and
monitor the movement of personnel. As part of the control

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system, IRS uses a badge system at service centers and NCC to identify, permit entry, and control the movement of authorized personnel and visitors. These measures are aimed at protecting the confidentiality as well as ensuring the reliability of tax return data.

Systems Acceptability Testing

IRS has established a System Acceptability Testing (SAT) function to test computer program changes, major modifications to systems, and new systems before incorporating the programs or systems into the tax processing system. The SAT function is responsible for ensuring that all internal revenue manual and ADP Handbook procedures, methods, requirements documents, equipment, and computer programs will fulfill the requirements established and approved for IRS ADP systems. Much of the SAT work involves testing computer programs or software. In consonance with the separation-of-duties principles, the SAT function is outside the Software Division of Data Processing.

The SAT function is carried out by several teams which are responsible for specific types of processing. As of late 1982 seven teams were responsible for SAT: an IMF team, a BMF team, an Information Returns Program team, an IDRS team, an Employee Plans team, a Service Center Replacement System team, and a Special Projects team. The test teams are comprised of representatives from the SAT function, other data processing functions, and user organizations.

The teams develop test objectives and plans on the basis of the documented processing requirements for each major application. For tax return processing, test returns and documents are developed and processed through the service center pipeline functions and posted to representative master file "test accounts" maintained at NCC. System problems are routinely reported to the responsible Data Processing function.

Implementing tax law changes

Because of the changing nature of the many tax laws, IRS has a systematic process for handling these changes. The Legislative Analysis Division of the Office of the Commissioner monitors Congressional tax legislation. After a bill has been enacted, the Division prepares a general implementation plan which establishes how IRS will incorporate the tax law changes into the processing system. Next, the Office of the Assistant Commissioner for Returns and Information Processing drafts the necessary changes to Internal Revenue Manual instructions for processing tax returns in the service centers and NCC. In addition, the Assistant Commissioner's office provides guidance to Computer Services for preparing the system specification and requirements documents needed to modify the tax processing

system. The Office of the Assistant Commissioner for Computer Services uses this information to prepare the specifications documentation and computer programs for the changes and to conduct Systems Acceptability Testing.

External reviews

Like most other Federal agencies, IRS is subject to our reviews and studies and to reviews and studies by the Office of Technology Assessment and various congressional committees. In addition, IRS may, on occasion, commission external study groups or committees to address controversial or technical issues related to IRS tax return processing responsibilities. For example, during 1980 IRS used an External Data Study Group to make system design recommendations for an improved Information Returns Program. Later, during 1980 and 1981, IRS used the National Academy of Sciences and its member organizations to review IRS Tax Processing System planning. Although the various external review groups and studies may not routinely address internal control issues, they do provide IRS' top management with an independent appraisal of its ADP planning, systems development, and operations.

Process controls

IRS has numerous process controls in place to ensure that the data processed through its tax processing system is complete, accurate, and timely. While these controls are outside of the mainline computer processing environment, without them IRS would have no way of knowing, let alone ensuring, that all documents they received were processed completely, timely, and accurately. The processing controls are designed to provide reasonable assurance that tax return input data will: (1) be discretely identified to the taxpayer, (2) be complete and accurate before it is processed, (3) be recorded when it enters the system and be accounted for in system output, (4) be converted to machine processing format without loss or addition of data, and (5) be processed without errors or processing errors will be detected and corrected in a timely manner. In essence, the pipeline functions of Receipt and Control, Returns Analysis, and Data Conversion are data input process controls. Because the pipeline functions are basically control functions, the following information somewhat duplicates the description of pipeline processing presented in chapter 1.

Program code specialization

Program codes provide a uniform structure throughout the tax processing system for identifying and processing tax returns and documents. As one of the first steps in pipeline processing, the Extracting and Sorting function sorts tax returns and documents into the appropriate program code. The

program codes are uniform among the service centers so that the same type return would be processed under the same code regardless of where it was processed.

To ensure program integrity, no work unit or employee within a function works on more than one program at the same time. Not only are returns and documents processed using program codes, other service center work actions and non-pipeline functions--labor relations, recruitment, adjustments, collection activities, inventory management, management and supervision, security planning, etc.--are also accomplished using program codes.

DLN

Each document processed through IRS' tax processing system is assigned its own unique identifying number. The DLN is used as a means of controlling, identifying, and locating a return or document as it is processed through the service center pipeline. DLNs are assigned during the initial stages of document processing. In the case of with-remittance documents, the DLN is assigned during the remittance processing phase in Receipt and Control. Non-remittance documents are assigned DLNs after the code and edit phase in Returns Analysis. DLNs are assigned by the computer or manually, and consist of 13 digits which indicate certain information about the document. Computer assigned DLNs have a 14th digit which indicates the processing year of that document. Returns and documents are blocked and filed by DLN.

Every DLN begins with a two digit file locator code, either service center or district office. The third digit is the tax class, e.g., withheld income and Federal Income Contributions Act. The fourth and fifth digits identify the specific type of document within a tax class. A document code 10 in tax class 2 would represent a 1040A return. Digits six through eight represent the processing date. The processing date is a numeric control (julian) date. The block number makes up the next three digits. One number is assigned to each block of documents according to tax class and document code. The next two digits identify the sequence of the document within a block, and are referred to as the serial number. The 14th digit is the last digit of the processing year.

IRS officials readily admit that without a DLN, the possibility of locating a document is almost non-existent. Further, no return or document except FTDs can be processed to a master file without a DLN.

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Batch/block control

All tax returns and related documents processed through the tax processing system are placed under batch control. A batch is a group of like returns or documents put together for processing and control purposes. The returns or documents, which could number as many as 2,000, are processed together through each pipeline function. A block of work, representing as many as 100 documents, is a group, or sub-batch, of returns or documents identified with consecutive document locator numbers to control the identity of the records. Therefore, a batch of returns may be comprised of up to 20 blocks of returns.

Each batch of work is assigned a number and each block within that batch is assigned (1) the batch number along with a suffix of between 01 and 20, (2) a DLN consisting of the service center code, tax class, document code, and the block number, and (3) an alpha numeric code for computer processing control. A Batch Transmittal (Form 2345), prepared for each batch, lists the block DLN for each block within the batch.

Batch control cards are prepared for each pipeline processing step. Information on the cards include the number of items in the batch, the date of receipt, and the scheduled date for completing service center processing. When processing is complete in a functional area and returns are ready to move to the next operating area, one of the batch control cards is released to the Reports Unit in the Accounting Branch where it is used to prepare the daily Batch Profile Report. Processing Division managers use the report to track the flow of work through the service center, as well as monitor the timeliness of document processing in each major function. Further, the report can be used to determine the location of any batch of work in the service center.

Control staffs

Each of the pipeline functions, except Receipt and Control, has a staff specifically responsible for controlling the work flow within the function and for ensuring that certain documents are released to meet scheduled service center cycle dates. Work is usually received in batch carts sorted into appropriate categories or program codes. The control staff assigns the carts to the various units and, after completion, releases them to the next processing area.

The Receipt and Control Branch does not use control units as a means of controlling the flow of documents. Since documents do not come under batch control until they leave the batching unit in Receipt and Control, a control unit could not be effectively used. Control units are more practical and effective after documents have been placed under batch control.

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Exception and error correction
and unpostables control

Another process control in place to ensure that accurate
tax return data is processed and posted to master file accounts
is that of error and exception correction. After tax return
data is keyed into the computer, computer programs subject the
data to math and validity checks to ensure that returns are
processed accurately. Returns which fail these computer checks
are printed on an error register for correction by tax examiners
in the input perfection function. When an error condition is
detected by the computer, it is classified in priority order as
follows:

1. **Data transcription error**--This error condition
   indicates that sections of a tax form were not keyed
   into or were incorrectly keyed into the computer.

2. **Error reason code**--This error condition indicates that
   there is data inconsistency.

3. **Validity error**--This error condition indicates that
   there is an invalid entry, or that a program validity
   test was not met.

4. **Noncompute**--This error condition identifies returns
   where the tax refund and balance due amount lines are
   blank because the taxpayers want IRS to compute the tax
   for them.

5. **Math error**--This error condition indicates that the
   computer's computation differs from the taxpayer's
   computation on the basis of the data that was keyed
   into the computer.

The error conditions found on the returns are corrected by tax
examiners in the priority sequence listed above. Only one error
condition is corrected each time a return appears on the error
register. The reason for this is that high priority error
conditions can cause low priority errors. Thus, correcting
high priority errors will often automatically correct the other
errors.

In addition, tax return data which is to be posted to a
master file account is subjected to a computer edit to ensure
that a valid tax account exists on the master file and that the
transaction is being posted to the correct account. When
transactions for each production cycle fail to post, the tape
records are sorted to DLN sequence and returned to the service
centers on an Unpostable Tape. These records receive
computer-assigned reference numbers and are added to each
service center's Unpostable Tape. A separate tape is maintained

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for the unpostables of each master file. The unpostables are printed on an unpostables register for correction by tax examiners who are also in the Input Perfection function. As unpostable correction attempts are passed against the Unpostable Tape, the unpostable transactions are removed from the tape and added to the Corrected Unpostable Tape, which is returned to NCC, or the unpostable is nullified and temporarily or permanently deleted from the system. Each service center is responsible for the control and correction of unpostables until the transactions are sent to NCC or permanently deleted from the system.

Procedures

IRS has detailed procedures for each of the many processing operations the service centers perform. For example, it has procedures for everything from opening and sorting the mail to preparing tapes for shipment to NCC. Internal Revenue Manuals, ADP Handbooks, as well as General Policy Statements make up this cadre of procedures. Part III—Revenue, Returns, and Accounts Processing—of the 12-part Internal Revenue Manual, which encompasses the bulk of procedures covering pipeline processing, includes 329 volumes of instructions.

Original entry and key verification

Another control in place to ensure data reliability is that of key verification, a process where a data transcriber enters the same information from a document that was previously entered by another transcriber. All documents entering pipeline processing are input through the DDES. Data transcribed from input documents is referred to as original entry.

When data is originally entered, the computer performs certain validity checks. Any data failing the validity checks will be flagged to be reentered at the time of key verification. There are, however, certain sections of a document that are always key verified (e.g., entity data) regardless of whether that document failed a validity check.

The key verification phase is, in effect, a duplication of the original entry input except that the computer alerts the transcriber to the sections needing verification. If an original entry input differs from a key verification input, the computer will signal the transcriber to make corrections as necessary.

Balancing unit

The Balancing unit is part of the service center's Accounting Branch and has the responsibility of ensuring that all numbered returns and receipts processed by the service

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center are put under control on the Service Center Control File (SCCF), converted to good tape, and transmitted to NCC. The SCCF is a magnetic tape file designed to control all documents and revenues while in the service center. Each document, as mentioned previously, is assigned a DLN. The DLN is established on the SCCF while the document is being processed and remains under SCCF control until accountability is transferred to NCC or the return is deleted from the pipeline.

The unit balances all computer files with the related subsidiary general ledger accounts, accounts for all revenue receipts, balances service center receipts with the NCC Report of Current Revenue Receipts Processed, and reconciles the deposits posted to general ledger accounts. This function is dependent on both computer program controls and manual operations. The function will be enhanced by the Revenue Accounting Control System currently being developed (see p. 80.)

The unit also coordinates with the Processing Validation Branch at NCC. This NCC branch is responsible for balancing NCC's processing input and output. Also, the branch validates processing controls and production quantities, validates money amounts which are posted to the master files and balances and certifies refunds.

Quality assurance

The service center quality review function provides IRS with a method to identify errors and their frequency during service center pipeline processing. The quality review data is gathered by randomly sampling employee work and recording the number and types of errors that employees make. For example, quality reviewers take weekly samples of IMF error register cases and summarize these samples by describing the errors and their frequency in an Error Analysis Report. The samples are analyzed by computer and the results are fed back to the processing area for use by the manager. Quality reviewers prepare analyses of processing errors to identify error trends caused by taxpayers and internal errors. The trends in taxpayer errors are shared with the Public Information Officer for news releases where applicable. The internal errors are used by managers for feedback and training purposes.

Computer operations controls

Up to this point, the discussion of internal controls has focused on general management and process or input controls outside the ADP/computer environment. As tax return data enters the ADP/computer function, a host of controls are in place to not only maintain the integrity of the computerized data but to control all aspects of the ADP function, from developing and testing a system to transmitting tape files from one location to

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another. Either directly or indirectly, all the internal controls within the ADP function have a bearing on data reliability. With controls in place to control, guide, and monitor the performance of thousands of employees, the effectiveness of hundreds of computer applications, and the effectiveness of continuous system development and modification activities, a detailed discussion of each control would be impractical for the purpose of this document. Rather, the ADP controls will be described in terms of general controls which normally apply to all processing carried out by the service centers and NCC and to program testing and system development efforts carried out by IRS National Office staff. In addition, the discussion will describe controls which are incorporated directly into the computer programs to help ensure that the tax processing system produces accurate and reliable data.

IRS' general ADP controls include organizational controls; system documentation requirements and standards; operational handbooks; computer center controls; system software controls; IDRS access controls; system design, development, and modification controls; the use of dedicated test computers; and application controls.

Organizational controls

The primary organizational control used by IRS' ADP function is the concept of separation of duties. Generally, the ADP personnel that support the tax processing system are separated both functionally and physically in the work environment. The system design and development function and the computer programs maintenance function are separate from one another; although both are at the National Office, they are physically separated from the computer facilities. Within the computer programs maintenance function, duties are further separated into IMF, BMF, Integrated Systems, Retrieval Systems, and Systems Software functions. As a result, no one group is in a position to control all the changes or developments involving the tax processing system.

In addition, the programmers/analysts at NCC and the service centers cannot change systems or programs that are service-wide applications except in emergency situations. In fact, the field programmers are not supposed to have access tó the computer program code or the computer equipment.

At the computer processing facilities, NCC and the service centers, the concept of separation of duties is maintained. As pointed out above, the field programmer/analysts are functionally and physically separated from the computer operations areas. Also, within the computer operations function, the duties of scheduling the work, maintaining the tape library, operating the computers, and maintaining the

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computer program library are separated and carried out by different employees.

System documentation requirements and standards

Documentation is the process of describing on paper how a computer based system operates. Without documentation, economic evaluations; system maintenance and modifications; fraud detection; and system reviews by management, users, technical personnel, and auditors would be almost impossible.

IRS has established documentation requirements for both its current computer systems and programs and those being converted to COBOL as part of the Service's Equipment Replacement Program (see p. 64). The current tax processing system applications, such as IMF processing, IDRS transcript requests, and FTD Penalty Computation processing, were developed on the basis of a requirements package formally called a Program Requirements Package (PRP). The PRP identifies the system's objectives and information requirements. From the requirements specified in the PRP, additional system documentation is developed and published in the following four computer program books.

1. Computer Program Book - 1 (CPB-1)

   A CPB-1 provides a narrative of each application program and a system flowchart showing the processing sequence of the programs associated with the specific type of master file processing addressed by the CPB-1: IMF, BMF, EOMF, etc. The system flowchart also shows each input and output file(s) required and created by each application program. (The CPB-1 for the IDRS contains this information for both batch and interactive processing.)

2. Computer Program Book - 3 (CPB-3)

   CPB-3s show the record layouts and blocking factors for the files used for each type of master file processing as well as IDRS.

3. Computer Program Book - 4 (CPB-4)

   CPB-4s contain the program instructions/coding for the various application programs.

4. Computer Program Book - 5 (CPB-5)

> CPB-5s are referred to as the "computer operators handbook." The handbooks contain operating instructions for each computer system and set-up instructions for each application program.

a/Computer Program Book - 2 was not issued. Instead, the contents planned for this book were included in CPB-1.

As the service center computer programs are converted to COBOL programming language, IRS programmers are using a "structured programming" technique and are required to develop new structured documentation packages. The requirement to use structured ADP documentation has been communicated throughout IRS, is set forth in Computer Services directives, and is being monitored by the Systems Software Support Branch within IRS' Computer Services function. With structured programming, IRS will replace PRPs with Functional Specification Packages (FSP). The FSPs will contain system requirements as well as system flowcharts, schematics, and record layouts which were previously contained in the various computer program handbooks. Overall, the FSPs will include all of the documentation, including operations handbooks, for a computerized system or application.

Operational handbooks

Besides the system documentation, IRS maintains a number of ADP Handbooks as sources of instruction and information for carrying out tax processing system functions. The ADP Handbooks, like the IRM, are designed to provide explanations and instructions about processing returns from the time they are received until they are posted to the master file and describe the disposition of any computer output. For example, ADP Handbook 120(00), Computer Operations and Management, provides instructions for various aspects of computer operations, such as equipment utilization, tape library operations, scheduling, security, and contract administration. ADP Handbook 11213, Processing Timeliness: Cycles, Criteria, and Critical Dates, provides major timeliness objectives for service center and NCC data processing operations. Other handbooks address DDES and IDRS terminal operations as well as ADP evaluation requirements.

Computer center controls

While the physical configurations, staff size, and computer equipment may vary among the service centers and particularly NCC, IRS has in place a number of management controls which, if maintained, provide tools for ensuring that complete and accurate tax data is processed through the systems. These controls include

--input/output controls,

--a scheduling function,

--preventive maintenance and malfunction reporting,

--computer room access controls,

--tape libraries with full-time tape librarians,

--backup tape files for transaction files and master files, and

--machine/computer utilization reports and evaluation.

The implementation, emphasis, and effectiveness of these controls will vary among IRS service centers and NCC. For example, computer utilization reporting is rather lax in the service centers while NCC has established a separate organizational entity to measure and manage computer utilization. On the other hand, access to tape libraries is generally very controlled in service centers while NCC's tape library is relatively accessible to operations personnel other than the tape librarians. Nevertheless, these computer center controls are used throughout the tax processing system.

System software controls

As the computers that support the tax processing system have become more sophisticated, many operations that were previously performed manually have been automated within the computer systems software. "System software" is defined as any program or computer system feature that helps interconnect and control the processing tasks associated with preparing input (tape files), output (tape files), processing, and managing and storing computerized data and computer programs. These system software features are generally incorporated into a computer system's operating system which may be characterized as "system management" software. IRS tax processing systems' operating systems are generally used to control computer programs stored on magnetic disks, to control tape and disk files during processing, to control security software for IDRS, to control the IDRS data communications system, and to provide an audit trail for IDRS transactions. In addition, the operating system controls many of the system utility programs, such as sort, copy, and edit programs which are heavily used during tax returns processing.

The new service center and NCC computers which have been purchased under the Equipment Replacement Program will probably use very sophisticated operating systems which include many system software control features. In addition, both the service

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centers and NCC are to receive automated tape library systems if current procurement plans are carried out. As a result, IRS' future tax processing system computers should be capable of providing many automated control features over tax returns processing.

IDRS access controls

While automated access controls are part of the system software controls just discussed, IDRS access controls demand special attention due to IDRS' size, importance, and extensive use throughout IRS. The integrity of the IDRS data base depends primarily on internal control features built into the computer. These features control access to the system and limit user privileges. To supplement these internal features, a designated security administrator at each service center and district office monitors system security. Security supervisors assist each security administrator by overseeing system users during work shifts.

System users access the system by activating the computer terminal with an individually assigned secret password and other identification data. Special computer programs generate the secret passwords and produce a list of alternates to be used in the event one is lost or compromised. Guidelines require periodic changing of passwords and the security administrator furnishes the new ones in sealed envelopes to authorized users. Unless the password and identification data input by the user match information in the computer, initial access is denied.

The system controls the extent of user access through employee and terminal profiles containing identification data and system command codes. Each employee and each terminal has a profile. Profiles specify the transactions and terminals that can be used by authorized employees. The data and command codes in the employee and terminal profile must agree before the system will accept a transaction.

A command code tells the system what to do. The system contains three types of command codes--security, production, and training. System security personnel use security command codes for such purposes as establishing, modifying, and deleting employee and terminal profiles. System users use production command codes to access and adjust tax data in the system. Training command codes, obviously, are used for training. Each code instructs the computer to perform a specific operation in relation to the transaction entered and the data recorded in the system. The number and combination of command codes available to a user determines the user's capability to process or obtain data.

Other control features of the data retrieval system include
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--control which locks a terminal after three consecutive
errors;

--capability to designate a taxpayer account as restricted,
thereby limiting the number of system users permitted
access to it;

--capability to detect system users who access their own
tax records;

--computer generated daily security report of the viola-
tions detected by the system; and

--a tape record showing transactions processed and accounts
accessed by each user.

Finally, by combining the tax return data used throughout
the service centers and district offices into a single data
base, access is improved and redundant files are eliminated.
This helps eliminate the possibility of inconsistent data
between different files, data bases, and users and, thereby,
maintains the integrity of the data used by IRS employees to
administer the tax laws.

System design, development, and modification controls

The adequacy and effectiveness of internal controls in
computer based systems begins with methods and procedures used
during system design, development, and modification. Proper
controls over these activities can help ensure that systems,
when implemented, meet user requirements, are cost/beneficial,
are adequately documented and tested, and contain effective
internal controls as well as an audit trail. To achieve these
system objectives, IRS has adopted a System Development Life
Cycle methodology for developing systems. System Development
Life Cycle methodology is a commonly accepted control technique
used to divide a system development process into distinct phases
or increments so that management can review the process at key
decision points.

While this methodology has more applicability to infor-
mation system developments and is discussed more extensively in
Chapter 6 (see p. 147), it is mentioned here because new systems
or applications have in the past, continuously been incorporated
into the tax processing system to support non-pipeline tax
administration functions. These systems not only rely on data
from the tax processing system but also provide updated tax

information to the tax processing system master files as well as the taxpayers.

Of particular importance to the tax processing system is the process IRS uses to control computer program modifications. Regardless of the magnitude of a modification, all program changes need to be controlled to prevent unauthorized and potentially inaccurate program changes from being incorporated into the tax processing system. To achieve this control, IRS has established Systems Control Points and uniform procedures for controlling computer program changes as well as requests for tax data needed for program testing or resolving system problems. Each service center and NCC has a Systems Control Point which is responsible for documenting the receipt and implementation of program modification packages, approval and implementation of locally developed computer programs, and access to tax data used for testing programs and resolving system problems.

Dedicated test systems

IRS Computer Services Software Division staff at the IRS National Office write and test the computer programs used for tax processing. The National Office programmers use test systems at NCC which are, for the most part, dedicated to program testing. The test computers are identical to those used in the service centers and for production at NCC. The programmers access the computers to run program tests via Remote Job Entry terminals, on-line test terminals, and tape-to-tape transmissions. Having dedicated test computers as well as having the programmers geographically separated from the test facility add additional control for maintaining the integrity of the tax processing system programs and its tax data.

Application controls

Controls, commonly referred to as application controls, are incorporated directly into computer programs to help ensure that accurate and reliable processing occurs. Generally, these controls are unique to each computer program and are the most difficult for auditors to identify and evaluate. To illustrate the types of controls a computer program may have, the tax processing system programs may examine computerized tax return data by checking for, matching, and/or using limit checks on

--codes,

--characters,

--data fields,

--combinations of data fields,

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--transactions,

--calculations,

--missing data,

--extraneous data,

--amounts,

--units,

--reasonableness,

--signs (+ or -),

--records (matches and mismatches)

--correct sequence,

--quantitative data balances, and

--quantitative data cross references.

To specifically address computer program controls, IRS has established projects which encompass the development and maintenance of processing controls in the tax processing system. For example, Project 709 involves computer programs involved in IMF and BMF processing which post information to the Service Center Control File. These computer programs account for and balance the tax returns volumes flowing through the service center with the volumes processed by NCC. In addition, these programs account for returns that have been rejected from the pipeline for error correction.

REVIEWS AND EVALUATIONS OF INTERNAL CONTROLS

Both we and IRS Internal Audit have issued reports over the last 6 years identifying internal controls that were either needed or needed strengthening. In most cases, IRS management has acted to implement the various recommendations.

During the last 6 years, we have issued several reports addressing internal control and ADP management issues. In 1977 we reported on IRS' security program and made recommendations to strengthen IDRS controls, physical security controls, and controls over computer program documentation and computer operations (app. III, GGD-77-44). In 1979 we issued a report (app. III, GGD-79-48) which recommended changes for strengthening IRS' ADP long range planning, system development process, and computer performance measurement function. More recently (app. III, GGD-83-8), we recommended that IRS begin

collecting and using better data for evaluating the tax proc-
essing system pipeline function. The reports' more than 30
recommendations to strengthen controls as well as ADP management
have been implemented, to some extent, by IRS.

We stated (app. III, GGD-83-8) in the October 1982 report
that the quality review function was of limited value for
identifying systemic problems because the error data does not
identify specifically where the errors occurred and what the
actual errors were. Further, due to the lack of detail, manage-
ment does not know if a particular processing procedure is
faulty and needs revision or if employees need further train-
ing. As a result, management cannot readily use the quality
review data for planning corrective action for systemic prob-
lems. While we found that IRS corrects most of the errors it
detects on tax returns, about two-thirds of the errors were made
by IRS employees. To reduce processing costs and IRS error
rates and to increase data reliability, we recommended that IRS

--change the procedures for correcting tax returns with
   multiple errors,

--change processing procedures for returns where IRS com-
   putes the tax for taxpayers,

--modify the form W-2 and clarify taxpayer instructions on
   claiming Federal income tax withholding, and

--incorporate prompting features in the direct data entry
   equipment to advise data transcribers when they fail to
   key certain tax data into the computer.

With the exception of the last recommendation, IRS has adopted,
to some extent, our recommendations.

In addition, IRS Internal Audit has issued numerous reports
that included internal control issues. Each year Internal Audit
reviews the processing of individual income tax returns by at
least three service centers. Typically, the review objectives
include assessing the effectiveness of the procedures and con-
trols used to process returns. The reports also normally iden-
tify processing controls and procedures, taxpayer instructions,
and tax forms that need to be improved. For example, Internal
Audit's review of 1981 processing of tax returns identified
procedural and processing control weaknesses which contributed
to taxpayers understating their tax liabilities or overclaiming
tax credits by over $1.7 billion. Other more recent reports
have addressed control issues associated with IRS conversion to
new equipment and software for the tax processing system. These
reports are noted during our discussion of the Equipment
Replacement Program on page 71.

On the basis of our work and internal audit work, control weaknesses will most likely result from (1) tax law and administrative changes which require changes to computer program controls and tax forms and (2) major software modifications and conversions which will result from new systems and the Equipment Replacement Program. These weaknesses are not subject to a one-time fix but, rather, will require periodic assessments such as those conducted by Internal Audit's annual review of the processing of individual income tax returns.

CHAPTER 3

PLANNED IMPROVEMENTS AND ENHANCEMENTS FOR THE
PIPELINE AND OTHER PROCESSING SYSTEMS

IRS has recently undertaken a number of efforts to improve the efficiency and effectiveness of the automated tax processing system. These projects and initiatives are in various stages of development ranging from proposal to pilot testing. Each will either improve or replace existing systems or implement new uses of computer and telecommunications technology.

IRS firmly believes that without immediate and substantial action to expand and enhance automation in tax processing, it will not be able to keep pace with an ever increasing workload. Outside of IRS, however, there is often a general fear—in many cases unfounded—that increasing the use of computers by IRS will eventually result in the erosion of taxpayer rights and privacy. Finding the proper balance for dealing with both these concerns will not be an easy task for IRS.

The purpose of this chapter is to describe the most major of the Service's initiatives to improve tax processing in terms of purpose, cost, status, and potential impact. To accomplish this, it is sometimes necessary to describe the process being improved or replaced. It should also be noted that some of these plans may never be implemented. Others may change significantly in scope or implementation schedule. Taken in sum, however, they represent the level of effort underway in IRS to increase and improve the use of computer technology in returns processing.

EFFORTS TO REPLACE SERVICE CENTER
AND NCC COMPUTER SYSTEMS

Probably the most visible and costly project currently underway at IRS is the program to replace the computer systems that support the pipeline and other tax processing systems. An initial proposal in the late 1960s known as the Tax Administration System was considered by the Congress as too ambitious with too much potential for abusing taxpayers' rights and privacy. It was not until the late 1970s that IRS began a greatly modified program to ensure that it will have the ADP capacity and capability it will need through the 1990s.

The current program has been broken down into three separate efforts which will take 8 years to complete and cost an estimated $225 million in equipment, facilities, and personnel. Although most of the actual equipment has either been installed or else will soon be, the rewriting and redesign of the IRS computer programs to be run on the new equipment has just begun. This aspect of the program is a major undertaking that will require careful management by IRS to ensure success.

Tax Administration System

As previously discussed, the automated tax processing system has both centralized and decentralized aspects. NCC maintains all taxpayer accounts while 10 service centers transcribe tax return data onto magnetic media and maintain selected account information for research purposes. This is conceptually the same system that began operation in 1962. Since then, technology has advanced to the point where this type of operation no longer represents the most effective and efficient use of computers.

Recognizing the problems inherent in a massive data system that is dependent on sequential tape processing, IRS set out in 1969 to redesign the overall system for the stated purposes of providing

--more timely access to all account information by major IRS offices,

--faster posting of tax returns and settlements of accounts,

--additional data available from tax documents,

--linkage between related accounts,

--more accessibility to cumulative tax data, and

--reduced transcription.

The product of these efforts was the proposed Tax Administration System (TAS) which basically envisioned a totally decentralized system where accounts would be maintained at the service centers and NCC would function as a switching center to allow the service centers to have a telecommunications capability with one another. NCC would also function as a taxpayer directory and provide all national reports while continuing to process and match information returns. In early 1977, IRS established that TAS would cost about $1.8 billion to finish developing and to operate and maintain over an estimated 12-year life.

TAS became the subject of congressional concern and controversy once funds were first requested. In fiscal year 1977, funding was denied because of uncertainties over the costs and benefits. IRS again unsuccessfully requested funding in fiscal year 1978. Further problems developed in the wake of increasing congressional concern over whether TAS would violate the rights and privacy of individuals spelled out in the Privacy Act of 1974 and the Tax Reform Act of 1976. Finally, in 1978, the Administration announced that it was no longer proceeding with TAS. Instead, funds were sought to upgrade the current

centralized system to improve IRS' administration of the tax laws.

Equipment Replacement Program

Increasing public and congressional opposition to TAS due to concern over personal privacy, First Amendment rights, a general fear of over-computerization, and the resulting dehumanization of Government, were all factors responsible for IRS cancelling the program. Realizing the sensitivities involved in TAS, an IRS study group was formed in the Fall of 1977 to develop a plan for another system in lieu of TAS. The outcome of this study was a major project aimed at retaining the current ADP concept of centralized master file processing but replacing and enhancing computer equipment to ensure continuing effective operations. Three broad phases were identified: upgrading master file processing, improving the accounts research function, and modernizing service center operations. With this basic charter, IRS consulted with the Office of Management and Budget to draw up an agreed upon position with respect to objectives and constraints under which the modernization plan would be developed. The agreement specified the following framework:

--Continuation of the centralized master file concept with a restructured file maintained on new storage devices and the capability for off-line inquiry into the data base for time sensitive requests.

--Replacement of service center systems with a single system for batch and realtime processing.

--Full implementation by January 1985, with the master file phase to be completed first.

--Acquisition of additional equipment for IDRS to meet interim needs at the service centers.

Working within this framework, IRS developed an overall Equipment Replacement and Enhancement Program (EREP) to modernize the data processing system. Soon afterwards, however, it was decided that the two functions--replacement and enhancement--should be segregated to assure that the vital replacement efforts would not be delayed while the various enhancements were being studied and considered by IRS and external review groups such as Congress, OMB, and Treasury. Consequently, the objectives of the Equipment Replacement and Enhancement Program were scaled down considerably and limited to an Equipment Replacement Program (ERP).

As initially proposed in July 1979, ERP was essentially a plan only for replacing aging and saturated equipment. However, it was apparent that the replacement process itself would result

in several overall improvements, if not enhancements. These included restructuring the data files, redesigning the system to a limited degree to be more efficient, using standard vendor software, and converting to higher level language. It was estimated the entire program would take 8 years and 1,600 staff years to complete at a total cost of $210 million in equipment, personnel, and facilities. The overall program was still to have three major phases: replacing most of the service center equipment, upgrading master file processing, and replacing the use of microfilm. Since the initial ERP proposal was made, the cost estimates and program phases changed considerably once IRS refined its plans and had a better grasp of what was required. In its budget for fiscal year 1983, IRS estimated that the total program cost would be $225 million. As work on ERP progressed, IRS reorganized its efforts to achieve the program's overall goals so that the three systems discussed below became separate projects in and of themselves.

The Service Center Replacement System

In July 1979, IRS prepared a feasibility study which recommended that IRS competitively replace both the CDC 3500 and H-2050A computer systems (used for the IDRS and pipeline processing, respectively) with one system via a single procurement action. The acquisition would use functional specifications to allow vendors to develop their best systems design. The study stipulated, however, that pipeline processing would remain a batch processing operation while those functions performed on IDRS would remain on-line. Consequently, the Service Center Replacement System (SCRS) would have to have both capabilities. The Data Communications Processing System, a Univac 90/30 computer used as a front-end processor for IDRS to manage and control terminal access to the system, was installed in 1980 and would not be replaced. Neither would the IDRS terminals be replaced. The Direct Data Entry System at the service centers, which is run on the GE 4020 computer system, would also not be replaced by SCRS but would constitute a separate project (See p. 71).

In February 1980, a Request For Proposals for SCRS was issued. After evaluating the three responses, a contract was awarded in June 1981 to Sperry Univac, Inc. for 11 Univac 1100/82 computer systems. Besides the 10 service centers, an 11th system was to be installed at NCC for national office programmers to use in developing and testing programs. The computers were acquired under a 4-year lease/ownership contract for $102 million. The price includes hardware, vendor supplied software for the operating system, and 8 years of maintenance which is the projected life of the system.

The Univac 1100/82 embodies mid-1970s technology. Introduced in November 1976, the 1100/80 series was, at that time, the largest and most powerful computer offered by Sperry Univac. The system was designed to compete with the IBM System/370 Model 168. IRS' Univac 1100/82 systems will use the latest release of the "Exec" operating system (Release No. 37R2).

The first Univac system for the service centers was installed at Memphis in March 1982 for pilot testing and began operations in October of that year. Installation and testing of the remaining equipment was conducted in stages and completed in April 1983.

Probably the most significant aspect of SCRS is the conversion from assembly language to COBOL of the almost 1,500 computer programs used at the service centers for pipeline processing and the IDRS. This effort involves much more than simply translating a line of code from one programming language to another. In the past, programs were written on an ad hoc basis as IRS began to collect more and more data and to use this data for more and more purposes. The result was a hodgepodge of programs that, although they work, are cumbersome to use, maintain, and add to when necessary. In addition, computer capacity is wasted by performing too many processing steps. A primary objective of SCRS is to streamline the processing that will be done on the new equipment. Programs are being written so that the work is done in a more structured and logical process with a minimum number of steps involved.

Obviously, it is critical that the conversion effort be well managed so that IRS is certain that all of the necessary data, processing steps, and internal controls have been provided for. Converting and consolidating the functions of several programs into a single program also necessitates a major effort in preparing updated program documentation, the narrative that describes in various detail what the program is actually doing.

IRS plans for the SCRS transition call for the effort to be carried out in four phases. During the first phase, the basic framework of the processing system and the major data base will be established and small segments of processing will be implemented. Additional segments and applications will then be added in each of the other three phases. Each phase of the transition will be implemented in a pilot service center (Memphis) and tested before being installed at the other service centers on a staggered basis. The first of the Phase I applications of the transition began to be implemented at the Memphis Service Center in October 1982 and all of the Phase I applications were fully operational at that service center by January 1983. All four phases of the transition should be completed nationwide by January 1985.

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During the transition, all three computer systems at the service centers will operate concurrently. As each of the four phases is completed, those applications that had previously been performed on the Honeywell and CDC computers will be moved to the Univac system. This is a tremendously complex operation where scheduling and planning is critical to avoid disrupting service center operations. After the transition is completed and there is no more need for the Honeywell and CDC computer systems, it is likely they will be excessed to the General Services Administration.

Master File Replacement System

A second phase of ERP called for improving the master file processing system by consolidating and restructuring files and using modern storage technology. Under the original plan, as conversion took place all of the programs used at NCC for master file processing would be restructured and rewritten from assembly language code to a higher level language such as COBOL. Since the overall ERP plan was prepared, however, IRS has modified its plans somewhat for the Master File Replacement System (MFRS).

Until very recently, NCC used nine different computer systems for master file processing: six IBM 360/65s, one IBM 370/165, one IBM 370/168, and an NAS AS/6. This conglomeration of equipment was acquired over a 15-year period on an as needed basis in order to cope with program changes and a continuously increasing workload. The IBM 360/65s and the IBM 370/165 were much older than the two remaining computer systems and also significantly less powerful in terms of capacity and speed. Programs were written to run on any of the computer systems which allowed flexibility in work scheduling but, in effect, limited the capabilities of the newer systems to those of the older, obsolescent systems. Moreover, using nine computer systems for master file processing, rather than one larger and more modern system, was a waste of space, power, cooling, and operators. Master file processing was also hampered by the same inefficiencies associated with service center processing:

--The piecemeal addition of programs over the years
  resulted in an overall processing system that was
  overly complex and cumbersome.

--Programs were written in assembly language code which
  made the programming effort tedious and unnecessarily
  complex.

A July 1981 MFRS feasibility study examined a variety of alternatives for improving master file operations. These ranged from replacing all equipment while simultaneously redesigning the processing systems and converting to a higher

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level language, to maintaining the present system and equipment but updating it on a piecemeal, as needed basis. A number of alternatives fell in between. IRS selected the least costly alternative, foregoing any changes in the processing system or programming language and acquiring a single, code-compatible system sized to handle IRS' processing requirements into the 1990s. This system would replace all the current computer systems at NCC except the NAS AS/6 and the IBM 370/168. All peripheral devices attached to the replaced systems, except the tape drives and some disk drives, would also be replaced. The tape drives would be retained since they are state-of-the-art and are owned by the Government. The Service estimated that this alternative would be $10 million cheaper than maintaining the present system.

The NAS AS/6 and its associated IAP/RJE (InterActive Processing/Remote Job Entry) equipment would be retained as the interactive Program Development System used to develop and test NCC programs. The NAS AS/6 is a state-of-the-art system installed in 1980 which was upgraded and converted to a test system in 1981. As state-of-the-art equipment, it requires vastly reduced quantities of space, power, and air conditioning when compared to the other systems at NCC. Similarly, the IBM 370/168 would be retained to handle a share of the processing workload and provide a measure of backup in case of replacement system failure.

In February 1982, a Request for Proposals was issued specifying one of six possible computer systems from one of three possible manufacturers. The restrictions were necessary to assure that the equipment would be IBM-compatible. In June of that year, IRS awarded a contract for an NAS/9060 with appropriate peripheral equipment. The contract, for $8.2 million, is a 3-year lease/ownership arrangement with the vendor to provide 4 years of maintenance. The equipment was installed the following October and production began almost immediately.

The installation of MFRS will result in greatly improved economies and efficiencies at NCC by the acquisition of a single, state-of-the-art computer system. The decreased operating costs of the new equipment and the fact that all of NCC's computers will now have identical operating systems should significantly improve reliability and increase NCC's data processing capacity. However, two of ERP's original objectives have yet to be fulfilled: (1) redesign of the master file processing operation and (2) conversion to a higher level language. Converting NCC's computer programs to a higher level language such as COBOL would be a mixed blessing for IRS. While it would vastly facilitate programming efforts, it could also necessitate additional equipment since assembly language is sometimes more machine-efficient than a language such as COBOL.

Microfilm Replacement System

As discussed in chapter 1, service center and district office research on taxpayer accounts is performed on either the IDRS or by manually searching the account information maintained on microfilm at service centers. A third phase of ERP called for eliminating the time-consuming and tedious process of searching through hundreds of thousands of microfilm records at the service centers and automating the accounts-research function with the Microfilm Replacement System (MRS). The benefits of MRS to IRS would be reduced personnel costs, improved timeliness and effectiveness in locating account information, and enhanced security over taxpayer data.

The original concept for MRS called for a separate computer system to be installed at NCC which would use a data base made up of copies of the master files (IMF, BMF, etc.) stored on large mass storage devices. A separate tape-to-tape data communications system for each service center would be used to transmit requests for tax data to NCC and the extracted data back to the service center.

Requests for data would be initially generated through IDRS terminals. Extracts returned to the service centers would be printed on the H2050A computer system for requests generated at the service center. Data requested by district office employees would be placed on a realtime file where it could be accessed through IDRS terminals.

Not all of the files maintained on microfilm at the service centers would be put on MRS. The Name Directory, which only carries key name and address data and is used for looking up taxpayer identification numbers, would be placed on IDRS and maintained at the service centers on a realtime basis.

The reductions in the time required for account research under MRS and the resulting improvements in economy and efficiency would be significant. Although microfilm data is updated weekly from the master files at NCC, because of the time involved in extracting, microfilming, and shipping, the data is already 2 to 3 weeks old when it arrives at the service center. Further, normal turnaround time for the microfilm research unit at the service center is 3 to 4 days. While expedite requests at the service centers can get overnight turnaround and high priority requests at NCC can get 4- to 5-hour turnaround, these are extremely costly and disruptive to normal operations. With MRS, all routine requests would get overnight turnaround and the data would be the most current available. Since the MRS data base at NCC would have a random access capability, high priority requests could be filled almost immediately with a minimum of trouble and cost.

Soon after the original MRS feasibility study was prepared, IRS held several briefings with various manufacturers and learned that the daily extraction of tax data for the majority of the microfilm requests could be handled more efficiently with the continued sequential processing of tape files. The mass storage system, however, was still considered to offer the best potential for providing rapid turnaround for high priority requests. It could also be used for random access to those files containing data that was 4 or 5 years old.

This slightly revised MRS was scheduled for implementation in all the service centers by June 1982, or before implementation of SCRS. The revised plan would have also required the installation of a second CDC 3500 in each service center to handle the additional workload requirements of MRS. This plan, however, was subsequently cancelled because of privacy and security considerations and a decision not to acquire a second CDC 3500 for each service center. As a result of these decisions, MRS was rescheduled for 1985/1986, or after SCRS and the initial part of MFRS was implemented. This delay eliminated the impact on the current systems, but it also delayed the badly needed replacement of the outdated microfilm equipment. Consequently, IRS once again reconsidered the problem in a December 1980 feasibility study and significantly altered the MRS priorities, level of service, and implementation schedule.

The most recent MRS plan calls for eliminating the mass storage devices which would have given the system a random access capability and, consequently, the capacity for rapid turnaround of high priority requests. Rather than acquiring a separate computer system for MRS at NCC, the system will be run on the SCRS computer which had been installed at the center to develop and test service center applications. Emergency requests would continue to be handled by special master file searches on NCC's IBM equipment. MRS will still use a tape-to-tape data communications system to transmit daily requests for transcripts to NCC and relay the information back to the service centers. However, instead of passing the requests sequentially against a random access data base, the requests will be edited into SSN sequence and passed against the entire master file in a batch processing mode. Approximately 1,600 reels will have to be mounted and dismounted on 20 to 40 tape drives in an 8-hour period to search the entire master file. Although the process is more complex and labor intensive than originally envisioned, an 18- to 24-hour turnaround time is achievable--a significant improvement over the use of microfilm.

With the equipment needed for MRS at NCC already in place, IRS decided that the service center requirements of MRS could be met by using SCRS to provide on-line access or printed documents. Consequently, the implementation schedule for MRS is now completely phased into the SCRS schedule.

The savings involved in modifying the original MRS concept are difficult to calculate. Although the basic computer systems for MRS will be provided under the SCRS program, the SCRS equipment at NCC and service centers will have to be enhanced with additional tape and disc drives. Moreover, there is the cost of 20 tape-to-tape stations--10 for the service centers and 10 at NCC--to consider. IRS estimates a total savings of approximately $115 million, which is the difference between the projected costs of continuing the microfilm operation and the cost to implement MRS. This figure does not take into account what MRS might have cost as originally proposed.

Improvements in data security provided by MRS are also somewhat confusing. With MRS, IRS will now have an audit trail to identify which IRS employees accessed which accounts for what purpose. With the use of microfilm, employees in the research unit could freely access any account at the service center. MRS will also have controls to ensure service centers only access those accounts which they are responsible for servicing. Similarly, there are physical breaks in transmitting the data that comply with OMB constraints. However, the data will be transmitted by telecommunications lines and, conceivably, could be subject to unauthorized access via electronic means. An internal audit recommendation that MRS employ encryption devices to protect the data is currently being considered.

Reviews and evaluations of ERP

The overall problem of how IRS can better use computer technology for tax processing, while still guaranteeing the rights and privacy of citizens, has been studied at length by various groups internal and external to IRS. While TAS came under intense scrutiny relatively late in its development, the intense criticism the program received prompted IRS to subject ERP to various reviews at an early stage and continue careful monitoring throughout its implementation.

As the concepts embodied in TAS became more and more finalized and received an increasing amount of attention from the Congress, we were requested to review the various aspects of the program a number of times. All told, we issued five reports on TAS which assessed, among other things, the necessity of the program, its cost/benefit justification, and its potential for affecting taxpayers' rights and privacy (see app. III). The overall conclusion of these reports was that TAS was necessary, cost-beneficial, and, with proper internal controls, would not jeopardize taxpayers rights and privacy. The Office of Technology Assessment also issued a report on TAS in March 1979 consisting of opinions solicited from a number of industry experts and public advisory groups. Their report basically advocated delaying the program until various issues raised by TAS could be examined in greater detail. As this report was being issued, IRS had already decided to cancel the program.

With the advent of ERP, IRS requested the National Research Council to conduct a 1-year assessment of the Service's plan for the transition from old to new equipment with particular emphasis on security and privacy considerations. The Council explicitly recognized that IRS was operating under certain constraints on the redesign of the system which had been negotiated with the Office of Management and Budget and that congressional concern over privacy and security had limited IRS' opportunity to exploit the newest technological ideas. The Council began its review in October 1979. It did not involve itself in the actual IRS planning and made no judgments on the efficiency and effectiveness of the equipment and overall system then in use. Consequently, the study focused exclusively on determining how the system would be changed, the sequence of the major steps, and the overall planning, organization, and management of the transition. Although the Council's 1980 report contained numerous recommendations, it concluded that the ERP plan was generally a sound and sensible one, that the program had the necessary management framework in place to help ensure effective implementation, and that ERP could protect taxpayer rights and privacy to the same degree as the present system given adequate attention to providing proper internal controls.

Regarding the unacceptability of TAS to many members of the public and the Congress, the report concluded that

"IRS must proceed slowly with its planning for computer-based systems and pace its expectations to the willingness of the country and its leadership to accept increasingly comprehensive tax administration recordkeeping systems. [The report noted, however, that] It is not at all clear how this willingness is to be detected, much less predicted well enough in the long range."

A short time after the Council's study, IRS arranged for another external evaluation of IRS' overall computer systems and plans that would include ERP, other tax processing systems, and management information systems as well. The Commissioner's Special ADP Study Group, composed of representatives of four major accounting and management consulting firms, issued its report in August 1981. Approximately half of the report focused on assessing IRS' implementation of ERP. Again, although numerous recommendations were made as to how the program could be improved, the report concluded that, given the existing constraints, the program provided a satisfactory framework for initiating the necessary changes and is consistent with the current direction of technology. The report warned, however, that even though ERP was basically a replacement effort, the risks of seemingly minor problems disrupting the entire transition were great and the implementation schedule could suffer as a result.

IRS' Internal Audit Division has been heavily involved in continuous reviews of ERP almost from the outset. Their approach has generally been to assign auditors to each of the three replacement systems at an early stage and monitor the system throughout its development. Generally, reports are issued at specific milestones which include preparation of the feasibility study, issuance of the RFP, evaluation of bids, preparation of the transition plan, etc. However, in many instances, the results of the on-line audits are relayed to management through memorandums or through briefings so that corrective action can be initiated immediately. For example, internal auditors reviewing the contract awarded for SCRS discovered a deficiency in the contract's systems support provisions which, had it not been brought to IRS' attention, would have required the Service to acquire additional equipment later on. The Internal Audit Division estimates that approximately $54 million was saved when the contract's provisions were clarified.

OTHER INITIATIVES TO IMPROVE THE
PRODUCTIVITY OF TAX PROCESSING

Although ERP is the largest single project currently underway at IRS to improve the productivity of the tax processing system, it is by no means the only one. IRS has initiated a number of additional efforts which, if implemented, could easily cost several billion dollars throughout their life cycles. Most of these projects will either be directly affected by or impact other projects. Basically, they each constitute, or will constitute, a segment of the overall tax processing system. Managing this growth effectively is essential to ensure that the many efforts are (1) coordinated toward common objectives, (2) not duplicative of one another, and (3) representative of the best of the alternatives available. Moreover, effective management is needed if IRS is to improve the effectiveness and productivity of the tax processing system in an orderly fashion while at the same time, retaining the confidence of the public and the Congress.

Listed below are the most major of these initiatives in terms of potential cost and impact on IRS operations.

Distributed Input System

DDES, described in chapter 1, is a key link in the tax processing system. The computers used to support it are the oldest in IRS' inventory. Failure of the system at a service center could idle 400 workers and seriously disrupt the entire center's operation. Although the system has generally proved to be reliable, IRS is replacing DDES with the Distributed Input System (DIS) for the following reasons:

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--maintenance costs of DDES are increasing rapidly, as much as 25 percent over the last 2 years;

--DDES equipment was installed in 1968 and is obsolescent and inefficient in terms of space, power, cooling, and support services;

--system software, written in assembly language, is not supported outside IRS; and

--the system is unable to use high level programming languages and industry software packages.

Aside from the primary objective of replacing old and obsolescent equipment, another concept IRS had originally envisioned was to decentralize the data entry function away from the service centers. IRS had thought it would become increasingly difficult to retain experienced data entry terminal operators given the seasonal aspects and mundane nature of the work. It was thought that with an essentially stand-alone and, therefore, portable system, IRS could move the operation on a temporary basis to economically depressed areas where operators would be easier to find. Because of the current economy, this is no longer a concern since IRS has no problem acquiring temporary workers at the 10 service center locations. However, it should be noted that because of the design characteristics specified for DIS, this option is still available to IRS. It is also conceivable that IRS could very easily decentralize the data entry function for selected or all forms to a regional, district, or even post of duty level. Instead of mailing these forms to a service center, these locations could input the data directly.

In August 1982, IRS released a Request For Proposals for DIS that described in general terms the functional specifications of the system, such as original entry, check digit analysis, and key verification. The vendors were allowed some discretion in proposing the equipment and software they considered to be necessary to meet the workload requirements.

The request called for a distributed system composed of network processors linked with local data entry terminals. Each network processor had to be capable of supporting the data-entry workload of a minimum of 32 and a maximum of 64 terminals and to operate independently of the other distributed processors. A total of approximately 4,500 terminals had to be supported at the 10 service centers. Vendors were free to propose whatever number of processors they thought would have sufficient capacity and throughput power to handle the workload, so long as each processor supported at least 32 terminals but no more than 64. Other stipulations were that proposed systems be capable of interfacing with the Remittance Processing System and that the

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number of terminals and related processors be capable of being expanded by 50 percent.

Our recent report (app. III, GGD-83-8) showed that by incorporating certain features into DIS, IRS could reduce its error correction workload by as much as 5 percent and error processing costs by as much as $495,000 annually. Although DIS afforded the opportunity to have prompting features or pro forma schedules built into the system, the Request For Proposals did not contain these features. IRS contends they can be incorporated into the system at a later time.

Vendors responding to the Request for Proposals were given the opportunity to compete in benchmarking tests. After benchmarking, a contract was awarded in June 1983 to Four-Phase Systems, Inc., a subsidiary of Motorola, Inc. Equipment installation and acceptance testing was expected to begin during August 1983.

From January 1984 until January 1985, DIS and DDES will be run concurrently although not in a parallel mode. It will be necessary to operate in this manner until SCRS completes the second of its four conversion phases. During these 6 months, DIS will be used for all phase I SCRS projects. DIS and DDES will be used jointly for phase II SCRS projects, depending upon which have been converted. IRS' Software Division is currently writing a conversion program so that after January 1984, DIS can input to non-SCRS (or H2050A) those Phase III and IV projects that are still being converted to SCRS. Consequently, DIS should be operational IRS-wide in February 1984 even though service centers will still be using a combination of SCRS and H2050A systems for math and validity checks.

IRS' Internal Audit Division currently has an on-line audit of DIS underway and expects to use approximately 800 staff days reviewing the system in fiscal year 1983. No reports have been issued as of yet. The expected cost of DIS is $38.1 million over a 6-year system life. Most of the software is to be provided by the vendor and will perform various edits and checks as well as contain the internal controls and entry formats defined in the Request For Proposals.

Post SCRS enhancements

Because the SCRS program is so large and involves significant changes in both computer equipment and software, IRS decided not to include any enhancements or system developments in the program. The Service has, however, initiated two projects which will further automate the error correction and unpostables resolution functions which are part of the tax processing system Input Perfection pipeline function. The two projects are called (1) the Error Resolution System, and (2) the Generalized Unpostables Framework.

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The Error Resolution System is an outgrowth of the 1979 Service Center Pipeline Study. During the study, a Prototype Error Correction System was tested for 49 weeks at the Austin Service Center. Basically, the prototype system replaced the hard copy error registers with terminals connected to a minicomputer. The minicomputer's data base was loaded with computerized tax return data from returns which had errors identified during pipeline processing. Tax examiners assigned to Input Perfection entered corrections through the remote terminals and the minicomputer produced a magnetic tape with corrected tax return data for processing on the H2050A pipeline computer.

The test results included direct production rates 41 percent higher than the national average and improved work quality. The projected nationwide savings expected for servicewide implementation of the prototype system was about $4 million. The study concluded that an enhanced system which would incorporate (1) the error correction concept tested in this study and (2) a data entry concept called Service Center Analysis Transcription being concurrently tested at Brookhaven Service Center (see p. 83) be developed and gradually transferred to the Returns Analysis function of the pipeline. This conclusion was expected to prove cost effective since it would eliminate material handling in two organizations and, ultimately, a number of different returns programs could be combined into one pipeline function rather than remain in three functions: code and edit, data transcription, and error correction. Although several alternatives for developing this capability were studied, the study recommended including the enhanced error correction system capabilities in the Services plans to replace DDES.

IRS did not adopt the study recommendation. Rather, it is developing the Error Resolution System as an enhancement to SCRS. The Error Resolution System is being developed to operate on the SCRS equipment, a Univac 1180/82 computer. If implemented as planned, the Error Resolution System will provide tax examiners assigned to the Input Perfection function with a capability to correct tax returns with errors through on-line terminals rather than continue using the current manual paperwork intensive procedures. The on-line error correction system will include on-line math and validity checks and, thereby, eliminate re-inputing the corrected return information through the DDES terminals.

Tax examiners will still work with blocks of returns. The new system, however, will identify which returns have errors and then, after the return is called to the terminal screen, display the data fields with errors. The tax examiners will have three options for resolving the error(s): (1) correcting the return, (2) deleting the return from the block if it cannot be

corrected, or (3) suspending the return pending correspondence with the taxpayer.

The system will require software development for both batch and realtime programming. The software development will be done by IRS programmers and will require about 25 staff years of effort. A precise estimate is difficult for IRS managers to make, in part, because IRS programmers do not have any experience in writing COBOL programs which operate in a realtime mode and use a Univac operating system.

If implemented as planned, the Error Resolution System will support on-line error correction for two types of tax returns. Additional returns will be incorporated at a later date. Initially the system will be developed to correct Forms 941, Employers Quarterly Federal Tax Return. A pilot system is scheduled to be operational at the Kansas City Service Center early in 1984. If successful, nationwide implementation of on-line error correction for Forms 941 will be completed by January 1985. A second type of tax return, Forms 1040, will be incorporated into the system in conjunction with placing IMF processing on the SCRS. Currently, Forms 1040 will begin to be processed on the SCRS during July 1984. If the SCRS software conversion is completed and tested as scheduled, on-line error correction for Forms 1040 will be implemented nationwide by January 1985.

The IDRS terminal replacement project (see below) includes terminal requirements for the Error Resolution System. About 1,000 terminals will be purchased to support the system. The terminals are to have multifunctional capabilities. This should allow some terminals to be used for other service center functions during the non-filing period or during periods of low tax returns processing volume.

The Generalized Unpostables Framework (GUF) is strictly a software development project. It involves a combination of rolling over current H2050A computer programs onto the SCRS and developing an on-line capability to correct transactions, called unpostables, that fail to post to the IRS master file. GUF will be integrated into the research function of IDRS. It will also be linked to the Error Resolution System.

GUF development and implementation will be accomplished over a 2-year period and require an estimated 16 staff years. GUF development work began in early 1982. SAT is planned for late 1983, and a pilot system is scheduled for implementation at Memphis Service Center during April 1984. Nationwide implementation is scheduled to be completed during July 1984.

When GUF is implemented, it is supposed to be capable of processing all unpostables associated with processing applications included through Phase III of SCRS. Basically, then, GUF will be able to process all unpostable transactions except those associated with IMF processing or individual tax returns. The capability to process IMF unpostables is to be included with the implementation of Phase IV of SCRS.

IDRS terminal expansion

IRS is currently initiating a procurement to upgrade and expand its terminal network for the IDRS system. After completing and reviewing a feasibility study, IRS forwarded an Agency Procurement Request to the Treasury Department in late 1982. IRS's current strategy, as reflected in the procurement request, is to replace the 4100 terminals that are currently being used.

During the first phase, the Service will upgrade the Data Communications Processing Systems to permit an increase in system terminal quantities. Two thousand terminals, with an option for an additional 2,000, will be added to the IDRS networks. About 1,500 of those terminals will be used for new IDRS applications, such as the Automated Collection System and on-line unpostable processing. The other 2,500 terminals will be for system growth which has occurred since IDRS was installed in the early 1970s. No equipment will be retired during the first phase. The Request for Proposals for phase I was scheduled for release in July 1983.

During the second phase, the entire IDRS network will be replaced. The 4,100 older CDC terminals will be replaced by new terminals and 900 additional terminals will be acquired to allow for network growth. Further, IRS will have the option to acquire an additional 5,000 terminals. An alternative within this option is replacing the terminals acquired during phase I.

If Treasury approves the request and IRS follows its strategy, the IDRS terminal network will almost double to about 7,000 terminals and could eventually be expanded to about 14,000 terminals. The cost of replacing the older terminals and expanding the system could cost as much as $50 million through fiscal year 1987.

Optical character recognition
and printer projects

IRS has initiated a number of optical character recognition (OCR) projects to reduce labor-intensive key punch and data transcription requirements, to improve the processing efficiency of mail-out documents, and to respond to FTD program responsibilities that are being shifted from the Bureau of

Government Financial Operations to IRS. The OCR initiatives that involve the tax processing system include

--processing FTD payments,

--processing individual tax returns (Forms 1040A/1040EZ),

--processing IMF and BMF notices,

--processing individual estimated tax vouchers (Forms 1040ES), and

--processing IRP documents (Forms 1099 and 1087) and underreporter notices (CP-2000)

In addition, IRS has plans to use OCR technology for a number of additional applications and internal management documents such as time and attendance reporting, WP&C reports, Federal/State Exchange Program documents, and preprinted labels on tax returns. The primary impact of the OCR projects is expected to be felt in returns processing where, to be efficient, IRS must maintain a pool of skilled data transcription personnel to process a highly seasonal workload. This requires continuous training which escalates overall tax return processing costs. OCR equipment costs will be about $17 million. Although substantial processing cost savings are expected, a precise estimate is not readily available.

In conjunction with the OCR projects, IRS is proceeding with a procurement to replace its tax processing system printers in the service centers and at NCC. According to an August 1982 feasibility study, new printers are needed due to insufficient printer capacity, a lack of OCR print capability, anticipated normal workload increases, and the shifting of FTD program printing requirements to IRS. Equipment replacement costs are expected to exceed $8 million with a total 8-year life cycle cost of approximately $22 million. Expected savings over the 8 year life cycle are estimated to be $24 million.

While IRS is considering the use of OCR for many IRS documents and tax processing functions, some ideas have not gone beyond the planning stage. The following information describes the applications that are being tested and may soon be implemented servicewide.

FTD test

IRS' first step in using OCR began in September 1982 at the Cincinnati Service Center with a pilot test using an OCR scanner to convert data from FTD cards onto magnetic media. Provided the 1-year pilot test results are favorable, all service centers will be processing FTDs using OCR by January 1984. A decision

to go servicewide was made in May 1983. Equipment costs over the 6-year system life would be about $13.5 million for all of the service centers.

Currently, service centers receive Deposit Ticket packages from the Federal Reserve Bank and Advice of Credit (A/C) packages from its commercial banks. These packages include FTD payment cards. As the packages arrive, the A/C is date stamped, and the A/C and its FTD cards are batched with other packages and serially numbered and microfilmed. The batches are then sent to Data Conversion where the FTD's hand written deposit amount is punched into the card and the packages' deposit amount, service center receipt date, and FTD card volume is punched into the A/C. After an FTD card-to-tape conversion run, the records are processed by the H2050A system which places the records on the SCCF and establishes a Service Center Transmittal Control Record. A good tape is then sent to NCC for posting the payments to taxpayers' accounts.

The use of OCR will not eliminate or change any of the operations performed by Federal Reserve or commercial banks. Once the documents are received by service centers, however, they will be input into an OCR scanner for processing. This will eliminate current key punch and data transcription functions.

The system will not usually be able to read the payment date stamped on the cards by the bank. Consequently, the operators will have to manually review the cards (after scanning) and correct (via the system) any date discrepancies. IRS believes, however, the overall system benefits will far outweigh the costs to perform this manual operation. IRS' main concern is being able to achieve processing efficiency in an uncontrolled environment (e.g., taxpayers' handwriting).

If the scanner cannot identify a character, the document will be flagged and the operator will input the necessary information. After video corrections are completed, a computer program will perform document validation. Any documents failing validity checks will be corrected. Block balancing is also performed during OCR processing. After OCR processing is completed, a tape is created for subsequent pipeline computer processing. Each of the steps cited above can be performed simultaneously.

The equipment configuration for each center is generally the same except for the number of CRTs. Each center will be provided (1) an optical scanner unit with microfilm and serial numbering features, (2) a minicomputer, (3) a disk subsystem, (4) a magnetic tape subsystem, and (5) 10 to 12 on-line CRT Terminal stations.

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In addition to processing FTD payments, IRS will begin printing the FTD cards in 1984. Currently, the Bureau of Government Financial Operations is printing the FTD cards. This shift in program responsibility resulted from a Treasury recommendation. As a result, IRS will convert from FTD punch cards to paper FTD cards which will be printed by new printers with an OCR print capability. Overall, this shift in FTD program responsibilities will require IRS to print, mail-out, and process about 150 million FTD documents each year.

1040EZ test

IRS decided to test an OCR version of the new Form 1040EZ at the Cincinnati Service Center near the end of the 1983 filing season. OCR versions of Form 1040EZ were not sent directly to taxpayers. Instead, about 150,000 scannable forms were distributed in Michigan and Ohio, States serviced by the Cincinnati Service Center. Forms were placed at the usual distribution locations and were also used for walk-in taxpayers. IRS officials anticipated a 10-percent (15,000) response rate; however, the Cincinnati Service Center only received about 8,500 scannable forms. Testing began in June 1983. IRS officials are optimistic about the OCR 1040EZ potential because IRS' Statistics Division estimates that 25 percent of all taxpayers could file the 1040EZ. In addition, if the test is successful, OCR has the potential to eliminate both the code and edit and transcription functions for these returns.

Scannable 1040EZs were blocked separately and underwent normal pipeline processing with other returns. Once pipeline processing was complete, the scannable forms were retrieved and returned to the Receipt and Control function to await testing. The test consists primarily of scanning the numerical entries made by the taxpayer. No entity information will be scanned. The test is being conducted on the same equipment being used for the FTD test.

The foremost problem in scanning 1040EZs is the uncontrollable numeric handwriting of taxpayers. The test also addresses two other problems: (1) non-readable figures by the OCR equipment and (2) figures which are substituted for the actual figure by the equipment. For example, an eight with unconnected lines could be read as a three. The OCR system will be programmed to perform rudimentary math checks which should identify non-read and substitution errors.

Remittance Processing System

A Remittance Processing System (RPS II) using OCR as the data entry mechanism is scheduled to be installed and tested at the Kansas City Service Center during July 1984. The type of equipment to be installed is used extensively by banks, service

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bureaus, and credit card companies in their billing operations, processes similar to the IRS "balance due" operations. RPS II will process "tear-off" IMF and BMF notices that will be machine readable. It will also be a stand alone system so that it may be drained at any time for subsequent processing on the SCRS. Many of these notices, letters, etc. are referred to as "turnaround documents" which denotes the fact that the taxpayer is expected to make an entry (or entries) on such a document and return it to the service center to input into the tax processing pipeline. The returned documents will be entered using OCR.

In order to read documents using OCR, they must be printed very precisely. A study of the service centers' printing needs was completed indicating that the service center printing workload soon will exceed existing capacity and that a better OCR print capability is required. High speed non-impact replacement printers with OCR print capability are scheduled to be installed in the Kansas City Service Center in January 1984.

Handheld OCR scanners

Handheld OCR scanners, such as those used by retail and grocery stores to register purchases and control inventories, will be tested at an IRS service center to process and control business tax returns. The scanners will be used to input entity information from mailing labels into DDES. A feasibility test was conducted during December 1982 at the Cincinnati Service Center. Results of the test were sufficiently encouraging to warrant further testing in a production environment. The most significant finding of the test is the potential to reduce processing time about 13 percent by using scanners.

Revenue Accounting Control System

IRS is currently using a manual accounting control system which was designed 25 years ago. Although the tax processing system is now computerized, the manual control system still performs in much the same manner as when it was conceived. As a result, the costs of performing this function have risen to over $2.6 million a year in direct staffing alone. The manual controls themselves have become so complex that it is often difficult to use these tools effectively. Additionally, there is valuable and useful information passing through the system which IRS cannot capture or compile because of the large amount of manual resources that would be required.

Since the late 1960s, numerous IRS studies have all concluded that the accounting function needed to be automated and efforts to do so have been underway in one form or another for the last 10 years. Most of the delay resulted from tying plans for an automated accounting system to TAS. Had TAS been implemented, the accounting system could have been centralized

at one location. When TAS was disapproved by the Congress, the overall concept for an automated accounting system had to be redeveloped so that each service center would have its own system.

The design that IRS has decided upon is the Revenue Accounting Control System (RACS). It is generally a simple concept. Currently, each service center maintains 160 accounts on ledger cards. Tubs are used to store the hard copy documents that are hand posted to the account ledgers daily. Trial balances and periodic reports are also prepared by hand. With RACS, these accounts will be maintained on a data base that can be accessed from the system's terminals and produce various reports either on command or automatically.

RACS will be a mini-computer based system designed to assume the manual balancing, posting, and reporting processes currently performed by three units in each service center's Accounting Branch. All data entry functions will contain sufficient validity and consistency checks to ensure that the integrity of the data base will be protected from unbalanced data.

Each service center system will have six user terminals, a system console, a magnetic tape drive, a 240-line-per-minute printer, a cassette station for transmitting summary data to the IRS National Office, and two disc drives containing a total of 200 million bytes of on-line storage. Software packages acquired under RACS are currently being modified at IRS' National Office on a prototype system installed there. The pilot system was installed at the Austin Service Center in February 1983 with servicewide implementation scheduled for completion by October 1984. The cost of the system is $1.9 million over a 7-year system life for hardware, software, and maintenance, but excluding internal development costs. In addition to the basic hardware and software described above, the contract allows IRS the option to acquire expansion equipment at a fixed price through September 1985.

Despite such features as automatic posting of transactions to the correct account and trial balances being prepared with each posting, the accounting function will still not be completely automated. Input to the system must still be through RACS terminals even though it consists of printouts produced by other IRS computer systems such as DDES, SCRS, and NCC. Output from RACS will still be printouts that must be delivered by mail. The system does have the capability for more expanded use of telecommunications and magnetic media for input, however, so that IRS will retain the option of eventually making RACS a paperless system.

IRS' Internal Audit Division has an on-line review of RACS underway. Approximately 400 staff days are budgeted to review the program in fiscal year 1983.

Transaction Processor Test

As an alternative to the current service center initial batch processing procedures, IRS is planning a test of transaction processing, a concept of completing the computer processing of a return or document, at one place, at one time, by one person, as soon as a return is received by the Service. The Transaction Processor Test is basically a concept to automate the many manual processes involved in returns processing during the extraction, sorting, batching, and coding and editing functions of the pipeline. Transaction processing would use intelligent terminals to complete all document processing actions after tax return data is entered into and verified by the intelligent terminal's processor. Correct data would be converted to magnetic media for subsequent processing, error data would be held in a system suspense file for corrections, and control data would be captured and processed to produce reports and index and control each return.

Since the introduction of ADP in IRS, service center returns processing activities have been structured around the need to move and control massive volumes of paper. However, until the paper reaches Data Transcription, no actual "data processing" occurs. If successful, the concept could eliminate the movement of over 450 tons of paper through the service centers each filing season and eliminate over 70 manual controls needed to control the movement of tax returns through the service centers. Information available from a 1979 Service Center Pipeline Study conducted at the Austin Service Center showed that, prior to transcription, a batch of documents is manually moved in bulk approximately 65 times, and passes through a control point 42 times. During this movement, individual returns are handled only 3 times and individual pages only once. Since the primary objective of these functions is to control and prepare returns for data conversion, low skilled employees are used for most of the tasks. The processing costs are thereby held to a moderate level within each functional unit. However, in the aggregate, the manual processing costs exceed the data conversion costs, regardless of the type of return or document handled. The primary goal of the transaction processor test would be to eliminate the labor intensive and manual aspects of initial pipeline processing and transporting of returns.

The test was initially scheduled to be completed by August 1984. However, project emphasis has been refocused from hardware acquisition to software development. A series of COBOL programs will be designed to test transaction processor

functions on existing equipment before acquiring new equipment. A revised project schedule has not been issued, but an IRS official estimates that overall implementation of this concept is at least 10 years away. The only cost estimate to date is for the test, to be conducted at Andover Service Center, which totals $164,000 for equipment lease, software, and supplies. This project is to be coordinated with the Tax Processing System Redesign project, discussed later in this chapter, since this concept could be incorporated into the design of the tax processing system of the future.

Service Center Analysis Transcription

Service Center Analysis Transcription (SCAT) is a process that combines the code and edit function (Returns Analysis) and the direct data entry function (Data Conversion) into a single operation for selected individual income tax returns. Simply put, the process involves the perfection and transcription of return data and related control documents by a single individual. Generally the analysis transcriber interprets information on the return and determines the correct data and/or codes to enter into the terminal. Sometimes the analysis transcriber will manually compute and/or edit certain items on the return to assist key verification and error correction.

Like the Error Resolution System, SCAT is an outgrowth of the 1979 Service Center Pipeline Study which explored numerous alternatives to improve productivity of pipeline processing. The study concluded that pipeline processing operations are slow, costly, and generally inefficient and that the operations lend themselves to techniques that, if implemented, could generate large savings as well as reduce processing time and improve the quality of the work product. The study recommended a feasibility test of combining the code and edit function and the data conversion function which, as discussed earlier, are carried out by separate service center functions.

This concept was tested in 1981 at the Brookhaven Service Center on 1040A returns. The returns traveled from Batching and Numbering directly to the Data Conversion function. Test conditions included the following:

--No presorting of the returns for the test was made. A designated volume of 1040As were pulled and numbered for the test. Returns were numbered with a special DLN. This allowed the service center to follow the returns through the entire pipeline and also through non-pipeline functions if required. Batch integrity was maintained throughout the test.

--No editing marks were entered on the returns. This procedure was later modified to allow selected editing marks to aid key verification operators and the error and reject correction functions.

--Since the returns were numbered before DDES processing, returns requiring correspondence were placed on the reject register.

--Work stations were modified by increasing the work area surface. Each work station was equipped with an adding machine.

Brookhaven's test data demonstrated that the test procedures were operationally feasible and cost effective. Both tangible and intangible benefits were realized. Service center officials interviewed Data Conversion managers and operators involved in the test. The interviews showed that the test procedures would aid in retention and recruitment of data transcribers, and that test procedures gave the transcribers an increased sense of job satisfaction and greater job enrichment. The operators stated that they enjoyed the challenge and the opportunity to think as opposed to performing like "robots."

The SCAT process was approved for nationwide implementation on an optional basis. The Brookhaven Service Center has elected to process all 1040A returns in 1982 using SCAT procedures. Only two of the remaining nine service centers, Atlanta and Memphis, elected to process a portion of their 1040A returns using the SCAT procedures. Results of the 1982 SCAT processing are not yet available.

TAX PROCESSING SYSTEM REDESIGN PROJECT

IRS recently established a new project office to address tax processing system design issues, a management approach, and an acquisition strategy, for a redesigned or new tax processing system that will support IRS' workload into the 21st century. The project, called the Tax Processing System Redesign (TPSR) project, will study and consider state-of-the-art ADP concepts that could result in fundamental changes in how tax returns are processed. In fact, the project has the potential to materially affect, replace, or override all of the initiatives already discussed in this chapter. Because of the design methodology being employed in the TPSR project, the systemic changes will ultimately be the result of ideas and proposals generated outside of IRS. Accordingly, there could be drastic changes in the way IRS carries out its tax administration activities in the future.

The need for this ambitious project was recognized soon after plans for the TAS were cancelled. After TAS was cancelled, the Equipment Replacement Program (ERP) was pursued to satisfy one of TAS' objectives of acquiring bigger and newer equipment. When ERP is implemented, IRS will find itself in the position of using modern equipment to support a system that employs an outdated processing concept. IRS officials readily acknowledge that, in this regard, TPSR is essentially a continuation of TAS. There is, however, a basic difference between the two. While TAS was conceived and designed by IRS, TPSR will be the result of private industry efforts. This situation is the outcome of IRS, and Treasury as well, emphasizing that Office of Management and Budget Circular A-109 be enforced for all major acquisitions. Basically, A-109 requires agencies to first determine their needs and then solicit bids for a solution. Using this approach, IRS issued a Request for Proposals in the Spring of 1983 for conceptual solutions to a very general need statement. The "system" to be redesigned at this stage is considered to be everything after data entry that is computer-related. Consequently, vendors are free to propose their own technical approach; design features; subsystems; linkages; and alternatives to schedule, cost, and scope of improvement. Obviously, the basic roles of the service centers and NCC could also be subject to change.

After the general concept has been decided upon, another Request for Proposals will be issued for more specific, fine-tuned ideas that fall within the concept. The successful response may have to be further fine-tuned through yet another Request for Proposals until the point is reached where a Request for Proposals can be issued for equipment to meet the needs of the overall system that has been developed. The role of the project team throughout this process will be to evaluate the feasibility and appropriateness of responses from a programmatic point of view. IRS is also considering hiring consultants to judge whether responses truly reflect state-of-the-art thinking.

As of December 1982, the project's Mission Need Statement estimated at least a 6-year development and implementation schedule. Although it is likely to change, the initial project milestones are:

Fiscal Year	Milestone
1983 - 1984	preliminary design concepts
1984 - 1985	final design concepts
1986 - 1987	demonstration and evaluation
1987 - 1988	full scale development
1989 - 1990	full implementation

It is not possible at this early stage to estimate what the project might cost due to the wide range of potential solutions. In its fiscal year 1984 budget request, IRS asked for $6.3 million to support the project during fiscal year 1984.

IRS expects benefits from a redesign of the tax processing system to include:

--The ability to accommodate increasing workloads without significant staffing increases,

--The ability to more timely implement legislation or administrative policy decisions,

--Increased responsiveness to users, both public and governmental,

--Increased ability to more timely account to Treasury for tax and other revenues,

--Increased ability to support IRS and Treasury executives through more timely and accurate information reporting,

--Decreased time required to process tax returns, thus accelerating the refund and billing cycles,

--Increased security of confidential taxpayer information, and

--More efficient use of energy and space.

CHAPTER 4

IRS' INFORMATION RETURNS PROGRAM

Over the past two decades, IRS has given increased emphasis to and improved the effectiveness of its program for matching the wage and non-wage information provided IRS by employers, banks, and other payers of income with the information taxpayers report on tax returns. The Information Returns Program (IRP) allows IRS to identify unreported income, nonfilers of tax returns, and taxpayers who may have overpaid their tax liability. To a large extent, the program uses most of the computer resources that support the tax processing system but also relies heavily on the Social Security Administration to provide all wage information in a computer processable format.

There are basically two kinds of information documents. The first is a Form W-2 (Wage and Tax Statement) prepared by employers showing wages, tips, and other compensation the employee received and the amount of income tax withheld. Second, IRS Forms 1099 and 1087 report dividends, interest, rents, royalties, medical payments, and other non-wage income received by individuals and nominees. Employers and payers have the option of reporting the information to IRS on paper documents or magnetic media.

In recent years, the Congress has shown increased interest in the program due to concerns of the subterranean economy and underreported income. In response to these concerns, IRS has requested and received more funding for the program and has studied alternatives for improving the program's design. In addition, our studies and studies by other external groups have recommended improvements to various aspects of IRP.

As a result of these efforts, IRS has progressed toward a full document matching program as envisioned by the Congress. Nevertheless, it is still short of that goal. The following statistics show the program results experienced and expected for the most recent 3 years of IRP. In 1981, IRS notified over 1.2 million taxpayers of potential discrepancies between income reported on their 1979 tax returns and income reported on information returns. That same year, 1.6 million taxpayers were sent notices of the need to file a tax return on the basis of analyses of the information returns. Both of these totals increased significantly during 1982 when IRS notified over 2.9 million taxpayers of potential discrepancies between their 1980 reported income and income reported on information returns. This is an increase of 1.7 million over the preceding year. Also in 1982, IRS notified 2.1 million taxpayers of the apparent need to file a tax return. For tax year 1981, IRS estimates the underreporter program alone will produce an additional $1.05

billion in tax assessments, and the nonfiler program will yield $147 million in additional assessments and $101 million in refunds.

Currently, IRS is at a decision point regarding a redesign of the system supporting IRP and assessing the impact of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) which has the potential to significantly increase the scope and volume of information documents. Despite the withholding initially required under TEFRA, but later repealed by the Congress, IRS believes IRP would still be needed to detect underreporters and nonfilers.

PROGRAM EVOLUTION

IRS' document matching program evolved from an earlier effort known as the Income Information Document Matching Program. This initial program was mandated by the Revenue Act of 1962 to give IRS the ability to determine whether a taxpayer has reported all income and to identify individuals who have never filed a tax return. Like the current program, it involved matching income information documents submitted by employers against individual income tax returns.

During its early years, the program was hampered by a lack of priority and inadequate resources. As a result, IRS did not use any of the paper documents and very little of the information filed on magnetic tape until tax year 1974. That year, IRS instituted a revised matching program, IRP, which is essentially the program which exists today. According to IRS, this change was necessary because

--taxpayers were becoming increasingly aware that IRS was not using information returns to verify the information reported on the tax return and

--financial institutions were becoming annoyed at having to provide documents when they were not used.

In 1974, IRS used a 10-percent sample of paper documents, a 10-percent sample of information returns filed on magnetic media which had been formerly discarded as being unusable, and 100 percent of the documents on magnetic media which did not require "perfecting" (correcting errors and filling in data omissions). Since tax year 1978, IRS has been matching all the W-2s, all 1099 and 1087 documents submitted on magnetic media, and a sample of the 1099s and 1087s submitted on paper against income reported on individual's tax returns.

As more emphasis began to be given to IRP, the Congress enacted Public Law 94-202--The Combined Old Age, Survivors, and Disability Insurance-Income Tax Reporting Amendments of 1975-- which strengthened the program by directing the Secretary

of Treasury and the Secretary of Health, Education, and Welfare to create and implement an annual wage reporting system to reduce the reporting burden on employers. This system, known as Combined Annual Wage Reporting (CAWR), became effective with all wages paid after December 31, 1977. Since both agencies require data from the W-2, the form is filed directly with the Social Security Administration (SSA) which in turn provides the data to IRS. Previously, this data was reported directly to IRS. Public Law 94-202 did not affect how Forms 1099 and 1087 are filed.

The introduction of CAWR has had a dramatic impact on IRP by allowing IRS to take better advantage of machine processing efficiency. For example, for tax year 1978, CAWR's first year, IRS used about 90 percent of the W-2s. The remainder was received too late to include in the program. This contrasts with tax year 1977 when IRS used only 30 percent of the W-2s.

EMPLOYER/PAYER AND EMPLOYEE/PAYEE
REPORTING REQUIREMENTS

Timely employer and employee reporting is essential to conducting an effective document matching program. As such, all information returns must be filed with SSA or IRS by February 28 while employees/payees must report all wage and non-wage income received on their income tax return by April 15. Employer/payer reporting requirements vary depending on the type of income—wage or non-wage—being reported. Employers must report on Form W-2 all wages paid an employee during the year. Payer reporting requirements for Forms 1099 and 1087 depend on the type of non-wage income being reported. For example, reporting is required for all interest and dividend payments of $10 or more, and rent, royalty and non-employee compensation of $600 or more. In addition, other non-wage income, such as tip income, requires 100-percent reporting.

SSA, IRS SERVICE CENTERS, AND NCC
SUPPORT ROLE

A number of steps are completed by the SSA, IRS service centers, and NCC in carrying out IRP. These include (1) converting paper information returns and information returns on magnetic media provided by employers/payers to magnetic tape records processable on IRS computers, (2) correcting invalid, incomplete, or missing names and taxpayer identification numbers (TIN) reported on the information documents, (3) conducting the computer matching or correlation runs at NCC which match information return data against tax return data, and (4) working the underreporter and nonfiler cases that result from the NCC correlation runs.

SSA W-2 processing

SSA supports IRP by providing IRS wage information from
W-2s on magnetic tape. Employers are required to submit Forms
W-2 and W-3 (a transmittal document) to SSA by the 28th of
February following the year in which the wages were paid. Upon
receipt, SSA performs an initial sorting operation to determine
which documents can be processed by using optical scanning
equipment to convert the data from paper to magnetic tape.
Paper documents which cannot be read by the scanning equipment
are key punched onto magnetic tape. Some employers already
submit their wage data on magnetic media.

SSA transcribes 26 data elements onto the W-2 tape record.
Some of the data elements are for the exclusive use of SSA, some
for IRS, and the remainder are used by both IRS and SSA.
Although the number of data elements may appear large, about
one-third of the elements are used in processing the data rather
than for matching against a taxpayer's tax return.

SSA's output from processing W-2s, the W-2 tape records,
are shipped to IRS beginning in April of the year following the
tax year and continuing through January of the following year.
Although SSA is supposed to ship a specific number of records to
NCC each month, in practice SSA ships on a weekly basis. In
addition, SSA sends IRS a microfilm facsimile of each W-2 which
is identified by a unique microfilm sequence number.

Under CAWR, SSA also assumed the total cost for the data
conversion operation. This amounted to $18.6 million for
converting over 175 million tax year 1978 W-2s. IRS pays none
of this cost. By contrast, we have estimated that, before
taking over the operation, it cost IRS $7.8 million to
transcribe approximately 24.7 million paper W-2s used in the tax
year 1977 program.

IRS service center processing

IRS service centers support all of the steps involved in
IRP with the exception of the correlation runs that are
conducted at NCC. In the past, this included processing 1099s
and 1087s, perfecting TINs on the information returns, and
working the underreporter and nonfiler cases. However,
beginning with the tax year 1982 information returns filing,
service centers will no longer be involved in the TIN perfection
process. This processing will be done at NCC.

Information returns conversion

Employers/payers provide IRS 1087s and 1099s on either
paper, magnetic tape, or magnetic disk. Due to IRS' promotion
of magnetic media filing and the reduced processing cost for

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employers/payers, most of the information return data is provided on magnetic media. For example, over 84 percent of the approximately 435 million information returns received from businesses and organizations during 1981 were submitted on magnetic media. The remainder was submitted on paper returns: Forms 1087 and 1099 series. Magnetic media filing not only simplifies returns processing for IRS but is 40 times less expensive than paper document processing.

The information returns submitted on magnetic media go directly to the computer branch for processing on the H2050A computer. The returns on magnetic tape are subject to a preliminary TIN validation run which makes range checks on the TINs. For individual taxpayers, their TIN is their social security number. If the information return passes the validation run, file return volumes and money totals are computed for accounting purposes and the tape file is reformatted for processing on NCC's computers. When service centers receive disk packs and diskettes, they forward them to the Austin Service Center which specializes in converting the data to magnetic tape. The magnetic tapes are then returned to the appropriate service center where they are subjected to the same processing runs--preliminary TIN validation, totalling, etc.--that magnetic tape files routinely undergo.

Of all the paper information returns received by the service centers, only a small percentage are used in IRP. For example, only about 24 percent of the 64 million information returns for tax year 1981 will be used. Because IRS lacks the resources to convert all of the paper documents to magnetic tape, an "alpha sample" is used to provide a systematic means of ensuring that all wage and information returns data is reviewed for selected taxpayers in the program. Each year, IRS determines the percentage of paper information returns to be included in IRP and achieves that percentage by selecting Forms 1099 information documents on the basis of the first letter of the taxpayers' surname. One year's alpha sample will cover only a few letters. The next year's sample will cover other letters. IRS estimates that the entire alphabet will be covered in a 4- to 5-year span. In addition, specific types of Forms 1099 wage and information documents for taxpayers included in the alpha sample must meet specified dollar tolerances to be included in the document matching program. While the IRS National Office determines the letters to be included in the alpha sample, the service centers develop the sample.

Processing paper information returns generally parallels tax return pipeline processing. The information documents are extracted and sorted by the Receipt and Control function. Only the information returns that meet the alpha sample and tolerance criteria are prepared for IRP pipeline processing. The selected documents are identified to an IRP program code, placed in

batches of up to 5,000 documents, subjected to code and edit requirements, and transcribed onto magnetic tape via DDES. The magnetic tapes are processed on the H2050A computer system, formatted, and sent to NCC for the TIN perfection step and correlation runs. The service centers are expected to convert most of the tax year 1982 paper documents to magnetic tape by July 1983.

Efforts to improve payer reporting discontinued

Because of the importance of accurate TINs, IRS has initiated efforts to improve payer reporting. In the past, IRS service centers provided payers/employers with social security numbers that were perfected or corrected during the TIN perfection phase of IRP. The intent of this effort was to improve the accuracy of information documents submitted to IRS in subsequent tax years. In addition, under a TIN Penalty Program, IRS notified employers/payers via correspondence if the employers/payers provided IRS with a significant number (20 percent) of information documents without social security numbers or TINs. If the payers did not provide social security numbers on information documents during the following year, they were sent a proposed penalty letter referencing Section 6676 of the Tax Code which authorizes a $5 penalty for each social security number that was omitted. If the payer could show "reasonable cause" for not providing a TIN, the $5 penalty was dropped.

In recent years, IRS has not used the penalty provisions to improve TIN accuracy although they are still in effect. The primary reasons cited for dropping these initiatives include the relatively high costs of notifying the payers, the time lag that exists between document filing and payer notification, and IRS' willingness to accept practically any excuse as "reasonable cause" for not providing TINs. However, beginning in October 1983, IRS is considering renewing the TIN penalty procedures and assessing payees a penalty in cases where, in the past, IRS has accepted reasonable cause explanations from payers. The renewed interest in the penalty assessments apparently stems from the compliance requirements of TEFRA.

NCC processing

Processing at NCC does not begin until all of the converted data on tapes from Social Security and IRS service center processing is received. After the tapes are received, NCC creates matching files and performs the correlation runs or the actual computer matching process. The IRP time frames shown on page 109 identify NCC activities which precede the correlation runs. The correlation runs compare the amount of income reported on Forms W-2, 1099, and 1087 to the income reported on

the taxpayer's Form 1040. The run uses files containing the consolidated SSA and service center information returns data and the IRP section of the taxpayer's master file account. Beginning in 1984, the IRP data will be matched against IRS' transaction file rather than the IMF.

An underreporter case is the output when the IRP documents income exceeds that reported on the taxpayer's return. Where the taxpayer's return is not present in the IMF extract and IRP documents are, a nonfiler case is produced. As previously discussed, underreporter and nonfiler cases are shipped to service centers for resolution.

TIN perfection

To match information returns against the IMF, the return must contain a valid name and social security number. Payee TIN perfection processing is the segment of IRP designed to determine the correct payee name and social security number for the many information returns. Social Security sends IRS a weekly tape of W-2s containing invalid or missing TINs, which are perfected along with 1099s and 1087s. IRS initially attempts to obtain the information necessary to perfect returns from computer analyses at NCC. In the past, returns which could not be perfected at NCC were sent to service centers for further corrective action. Beginning with tax year 1982, however, SSA will begin doing some TIN perfection on W-2s.

Previously, TIN perfection was a three-step process involving computer matching, microfilm research, and taxpayer correspondence. The first step involved matching the taxpayer's address on the information return to the address on the IMF. This process compared an abbreviated form of the address on the return to the IMF address, and determined the degree to which they matched. The computer selected the most likely address from six possible matches (called the match list), and corrected the name and/or TIN for that return. If computer matching failed to produce a good name and address, account information was forwarded to service center personnel who used the microfilm name directory to try to perfect the return. This step was highly labor intensive because it involved scanning the microfilm directory which contained the names and addresses of all taxpayer accounts on the IMF. Failing this step, the last chance match is used. In this step, IRS used the address on the return to send a notice to the taxpayer requesting verification of the name and social security number. According to IRS, the correspondence method was highly effective in correcting information documents of women who marry during the tax year.

For tax year 1978, IRS successfully perfected 85 percent of the 5.7 million returns with missing or invalid TINs: 52.2 percent through computer matching, 17.6 percent through

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microfilm research, and 15.5 percent through correspondence. Due to budget constraints, IRS has not used the three-step perfection process since tax year 1979. Taxpayer correspondence was eliminated in tax year 1980. For tax year 1981 information returns, only computer perfection will be used.

Processing underreporter and nonfiler cases

After the correlation runs are made, NCC sends the service centers tape files of potential underreporter and nonfiler tax cases. The H2050A computers are used to prepare cases for printing and manual screening, to prepare notices to taxpayers, and to prepare case files. Usually, the underreporter cases are initially assigned to the Returns Analysis function while the nonfiler cases are initially assigned to the Collection Branch in the service center. Underreporter cases which result in a nonresponse or disagreement by the taxpayer are assigned to the service center Examination Branch for resolution. Besides using the H2050A system to initially process the NCC tapes, the nonfiler cases as well as some of the underreporter cases will be placed on the CDC 3500 system to assign and control cases, prepare computer-generated correspondence, and perform various other functions.

Payer Master File

An IRS initiative to promote payer compliance is a Payer Master File (PMF). The PMF, as planned, will contain entity information on all payers who have filed information returns, the type of information returns they have filed, and the amounts of payments involved. IRS plans to develop a PMF by 1985 that will be able to identify payers who have stopped filing information returns as well as payers that do not file information returns. This initiative stems from IRS' experience that if a payer provides the payee a copy of the information return filed with IRS, then the recipient of the payment is much more likely to report that income on his or her tax return. IRS believes that a PMF will provide an additional tool for measuring and enforcing voluntary compliance.

IRP TIMEFRAMES

IRP processing--the time from when IRS receives information documents until the first underreporter case is produced--takes a minimum of 14 months. An additional 12 months might be required before an IRS service center completes action on a case. More complex cases, those in which taxpayers request a conference, are sent to IRS district offices. Except for the latter stage, which can take an indeterminate amount of time, the following information shows the time frames for IRP processing for the 1981 tax year.

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Dates	IRP processing steps
January-December 1981	Tax year covered by wage and non-wage income
January 31,1982	Copy of information returns due to employees and payees
February 28, 1982	Employers/payers submit W-2s to SSA and 1099s and 1087s to IRS
February-December 1982	IRS service centers convert 1099s and 1087s and ship records weekly to NCC
April 1982-January 1983	Social Security transcribes paper documents to tape which are shipped weekly to NCC
April 1982-September 1982	Social Security ships no-TIN and invalid TIN W-2s to IRS for TIN perfection
April 1982-January 1983	NCC performs edit and validity checks on tapes received from SSA and IRS service centers
January 1983	NCC performs file creation runs
April 1983-May 1983	NCC performs IRP correlation (matching) runs
May 1983	NCC ships underreporter and nonfiler cases to service centers
June 1983-May 1984	Service centers receive and work underreporter cases
August 1983	Service centers receive potential nonfiler cases

IMPACT OF TEFRA

When TEFRA was signed into law in September 1982, it not only imposed new withholding and collection requirements on taxpayers but also significantly increased information

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reporting requirements. As a result, both the FTD system and IRP was expected to experience significant increases in transaction and document volumes. Since the law was passed, however, the Congress has repealed the section of the law which required tax withholding on interest and dividends.

With regard to IRP, the full impact of TEFRA is still unknown. Some IRS officials, however, estimate the information returns filing volume could increase from over 600 million information returns to as many as 800 million returns. The volume increase is expected to result from new reporting requirements for bond and security transactions, tip income, services performed by independent contractors when the aggregated yearly payments exceed $600, bartering, and State and local tax refunds. Information reporting volume for these items is difficult to estimate because a significant portion will tend to be "transaction" oriented rather than "period" oriented, such as annual interest reporting. For example, brokers are required to report "gross proceeds" for transactions completed for their customers. Given the thousands of licensed brokerage companies operating throughout the country and the millions of shares of stock transacted daily on the various stock exchanges, the potential reporting volume is staggering.

Nevertheless, IRS will have to be prepared to process the increased workload as well as begin to monitor taxpayer compliance with the new reporting requirements. The additional workload may require some increase in staffing and will undoubtedly place new demands on IRS' computer systems and equipment. IRS has already initiated a feasibility study to review the increased IRP processing requirements for the NCC master file system. In addition, IRS is considering renewing and expanding the scope of the TIN Penalty Program to improve payer and payee reporting.

STUDIES OF IRP

IRP has been studied extensively by IRS and by us over the past 4 to 5 years. The Congress has also expressed a great deal of interest in document matching.

Our studies

Much of our work on IRP was performed in connection with our review of the subterranean economy. IRP offers IRS the best compliance tool for detecting underreporters and nonfilers on a mass scale. The results of our work are reflected in three testimonies given in 1979 and 1980 and two reports issued during this same period (see app. III).

Our testimony discussing the subterranean economy identified a number of ways to improve the program. Chief among these were

--improving payer reporting,

--increasing document utilization,

--subjecting more income to matching, and

--collecting and using automated management information.

Payer reporting has long been a problem which affects the ability of IRS to get a complete income profile on a taxpayer. Noncompliance rates have ranged from 19 to 42 percent. Surprisingly, some Government agencies were not in compliance. IRS' CAWR Reconciliation Program, while designed to ensure that employers pay the correct payroll taxes, also detects employers who fail to submit all W-2s.

IRS is not using all the information documents it now receives. It must still transcribe some 1099s and 1087s onto magnetic tape but does not have the equipment and staff to do them all. The use of optical character recognition equipment such as Social Security uses for the W-2 would decrease the number of documents requiring transcription. In addition, budget reductions since 1979 have reduced IRS' ability to correct information documents with missing or invalid TINs.

More income could be subject to information reporting. For example, within the Government alone, U.S. public debt obligations--Treasury bills, notes, and bonds (excluding series E bonds which are being matched)--are not subject to information reporting. The dramatic increase in this country's divorce rate makes reporting on alimony an attractive possibility. One recent change in reporting was made by TEFRA, which required the States to report State income tax refund data to IRS. This area holds forth great potential for improving payer reporting and IRP processing provided it is implemented effectively by requiring the States to use magnetic media reporting.

Two reports have also shown that the matching program can be improved. Our 1980 report (app. III, FGMSD-81-4) noted that redesigning IRP's processing system can improve computer productivity, especially in light of the Equipment Replacement Program. Our earlier GAO report (app. III, GGD-79-48) recommended improvements to IRS' ADP organization and computer software.

Congressional studies

The Congress has shown great interest in IRP. In 1962 the Congress rejected a proposal which would have required withholding of income taxes on non-wage income and directed IRS to initiate a program of full matching of income information documents with tax returns. Factors contributing to the need for a matching program were:

--Matching is the only systematic program to identify taxpayers who do not report all of their income included on information documents or who have never filed a tax return.

--Matching is the only systematic program for identifying taxpayers who have overpaid their income taxes and are unaware that they are due a refund.

--Matching is a systematic program which is intended to foster a high degree of voluntary compliance and to increase taxpayers' confidence in IRS' capability to enforce the tax laws equitably.

Several congressional committees have shown a keen interest in the matching program. The Subcommittee on Commerce, Consumer and Monetary Affairs, House Committee on Government Operations, has spearheaded congressional interest in IRP. In 1976 the Subcommittee held public hearings and issued a report on the progress IRS had made over the last 15 years to implement a document matching program which uses 100 percent of the information documents. The Subcommittee recommended that IRS make IRP a high priority program and keep the full Committee informed of its progress in implementing a 100-percent matching program. In addition, the Subcommittee held public hearings in September 1979 on the usefulness of document matching to combat the subterranean economy. In October 1980 the Subcommittee held hearings on how to improve IRP. In addition, the Subcommittee on Oversight, House Committee on Ways and Means, and the Joint Economic Committee held hearings in 1979 on the subterranean economy and IRS' efforts to identify and pursue nonfilers and underreporters.

Planned and ongoing IRS studies

IRS studies of IRP generally stem from questions raised by us; congressional committees; Treasury officials; and IRS management, including Internal Audit. Interest in this program is reflected in the fact that as of November 1982, IRS had a total of 25 studies--20 active and 5 completed--looking at various aspects of the program. The study areas generally address the

--requirements of the Commissioner, Treasury, and the Congress;

--assessments of program effectiveness and efficiency;

--productivity enhancement; and

--resource availability.

IRS completed five studies of the program in 1982. These studies dealt with bearer obligation interest reporting, Forms 1099 and 1087 simplification, revenue yield of delinquent returns, limited taxpayer contact, and an IRP management information system. Generally, IRS studies have dealt with measuring payer/payee reporting compliance and measuring the difference between the amount of income that should have been reported and the amount reported (reporting gap).

Four of the completed studies address compliance enforcement issues. The bearer obligation interest compliance study revealed that voluntary compliance was significantly higher when interest was subject to information reporting. The Forms 1099 and 1087 simplification study made over 50 recommendations, two of which called for a significant reduction in the number of forms and the installation of an integrated system to assure consistency among all elements of information reporting and processing. IRS' limited-scope taxpayer contact study involved measuring, IRS' "presence," which included all contacts with a taxpayer. These contacts included correspondence for such things as unallowable items, income underreporting, and math errors. The study found that IRS taxpayer contacts of these types had a greater effect on taxpayer compliance in subsequent years than audit only contacts. The study of future revenue yield of delinquent returns showed that nonfiler TDI cases worked by Collection produced additional revenue of $200 per taxpayer contacted over a 3-year period versus TDI cases not worked due to excess workload.

The purpose of the IRP management information system study was to develop an integrated IRP data base for use as a tool in the overall program management. According to IRS, the present IRP data base, which is a series of segregated data bases, does not provide IRS with information for making informed management decisions or the ability to answer questions from the Congress, Treasury, and us in a timely manner, if at all. The proposed system has been approved by IRS management. Using a 2-percent sample of information returns and a 10-percent sample of cases, the system will compile data on the sample throughout the IRP cycle, with cases being tracked through closing. The total cost of this system is estimated at $5.3 million in start-up costs and $1.3 million in annual recurring costs. The system is scheduled to be operational in 1985 for use with tax year 1984 information returns.

In addition, in June 1980 IRS completed a comprehensive study of IRP in conjunction with its Equipment Replacement Program (see ch. 3). The study developed a series of recommendations for streamlining input processing of information returns. Chief among these recommendations were standardizing program routines, redesigning record and file structure, using

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simple run control techniques, and improving the conversion of data from paper documents. IRS has begun converting service center computer programs to a higher level language and is looking at other study recommendations as they move forward with replacing service center computer equipment. IRP document processing will be among the first applications to operate on the new service center computers.

CHAPTER 5

MANAGEMENT INFORMATION, ADMINISTRATIVE,
AND TAX ANALYSES SYSTEMS

Although the majority of IRS' computer resources are used
for tax and information returns processing, they also support
other types of systems. In the past, computer systems not used
in processing returns have generally received only limited em-
phasis and attention from IRS. Nevertheless, they play an
important role in managing IRS' operations and measuring how
well the Tax Code is being enforced.

Management information systems have a variety of uses at
IRS including program planning and evaluation, allocation of
resources, budgeting, and controlling of inventories of cases in
the various functions. Administrative systems support more
typical activities, such as payroll, procurement, and supplies
and property management. IRS also depends on computer tech-
nology to collect, analyze, and report aggregate data from
returns it has processed. Recently, the use of computers for
office automation has generated a number of projects throughout
IRS.

The need to expand and improve non-returns processing com-
puter systems has been recognized by IRS for some time. Until
recently, however, relatively little has been done. The current
expansion program, the result of top management's commitment to
more fully automate operations throughout IRS, has had a dra-
matic impact on IRS initiatives in this regard. This chapter
describes the major management information, administrative, tax
analyses, and office automation systems currently in use and
IRS' plans to modify or enhance them as well as to develop
entirely new applications and systems.

CURRENT MAJOR MANAGEMENT INFORMATION SYSTEMS

In December 1981, IRS conducted an inventory of management
information systems used or planned throughout the Service at
both the field and National Office levels. A total of 640
systems were identified: 296 as operational, 39 which were in
development or being tested, 42 which had a commitment to be
implemented at a later date, and 263 which existed as an idea
only. Most of the 296 operational systems were local appli-
cations to support a program or activity at the National Office,
regional, or district level. Very few had the capability of
collecting data at all levels on a servicewide basis.

As has been reported to IRS numerous times over the past
several years by both internal and external study groups, these
fragmented and sometimes duplicative information systems often
produce untimely and inaccurate data that is of questionable

value to program managers. In addition, the systems have not used standard terminology and design specifications. Consequently, they cannot be used for cross-functional purposes. The cause of this condition is most often cited as IRS' emphasis on returns processing systems to the detriment of all other systems. Nevertheless, IRS has implemented some information systems that do provide data on a servicewide basis. The following is a description of the most major of the current systems in terms of the activity they support as well as IRS' plans to enhance or modify these systems.

Examination

IRS' Examination function has one primary information system--AIMS. AIMS is a data base of audit cases maintained on the service centers' IDRS. Implemented in 1976, it contains data on all returns charged out to the Examination function in the district offices and service centers. AIMS was designed for the primary purpose of providing

--effective control over all tax returns in the examination stream;

--timely and accurate management reports,

--uniform case closing procedures, and

--a reliable method of verifying tax assessments.

Cases are established on AIMS in two ways. At NCC, tax returns are given a computer-generated score for identifying those with tax change potential. Returns meeting established criteria are listed on magnetic tape which is sent to the appropriate service center where a case is opened for each on AIMS. Examination personnel in district offices or service centers can also establish cases on AIMS. For example, in the process of examining a return, the need for other related returns may surface. Requesting a return will automatically place it on an AIMS register so that the system can be used to account for all charged-out returns. Although only skeletal information is sufficient to open a case on AIMS, complete information is necessary to close it.

The number of data elements possible for each return is extensive. Data on over 50 items can be captured on AIMS, including the taxpayer's name, address, identification number, IRA information, claim amount, date of death, preparer's name and identification number, and the DIF score for the return. Audit status and management data can also be captured on AIMS, including case creation date, organization code, district office code, source of return, case status, activity code, recommended

examination results, agent's name and grade and time applied, review time, fraud condition, audit issue code, special project code, date transferred to Appeals, and disposal code and date. IDRS terminals in the service centers and the Centralized Services Branch at the district offices provide access to the AIMS data base for authorized employees.

AIMS basically provides information on the inventory and status of audit cases. While the AIMS data base can be updated through IDRS terminals, assessments, adjustments, and other transactions must be posted to the BMF and IMF via the tax processing pipeline system in the service centers. Paper documents supporting AIMS transactions are batched, input through DDES, and processed on the service center H2050A pipeline system. Inventory control and management reports on transactions are generated at the service centers and provided to the districts. The same data is also placed on magnetic tapes which are shipped to the Detroit Data Center (DDC) as well as NCC. While NCC posts the transactions to the master file accounts, DDC summarizes the data and generates reports for district, regional, and National Office managers.

AIMS processing will change with the implementation of SCRS (see p.63). Under Phase II of SCRS, the AIMS data base will be merged into the Taxpayer Information File, a master reference file for all interactive data base transactions. Also, all AIMS transactions will be processed directly through SCRS rather than through the service center pipeline function. This will eliminate the labor intensive batching and data transcription procedures. Documentation to support the AIMS transactions will be automatically generated through SCRS and will be placed in the appropriate case file. In addition, SCRS will capture the AIMS transactions on magnetic tape for subsequent posting to the master file.

Information for preparing the overall Examination Plan is sent from the districts to the regions where it is summarized and sent to the National Office. There it is compiled with other regional reports and sent to Detroit and service centers to be included with the AIMS output reports to provide a planned versus actual comparison.

Both IRS service centers and DDC produce AIMS reports. The service centers produce 30 AIMS tables on a weekly, monthly, quarterly, and semiannual schedule. Detroit produces 85 reports on either a monthly, quarterly, semiannual, or annual basis. Because of the high volume of reports, they are grouped into systems by functional area or information extracted.

System	No. of reports
Base Inventory System	2
Service Center Examination Program	12
Discriminant Function Program	5
Distribution Tax Change Reporting System	15
Integrated Reporting System	6
Management Information Reports	43
Review Reporting System	2
Total	85

A March 1982 Internal Audit report found that, although AIMS is an effective tool for verifying assessments, it is not achieving its other purposes. According to Internal Audit, the perception that the system is inaccurate is so pervasive that necessary corrective action is often ignored as a wasted effort. The report concluded that inaccurate and untimely AIMS data base information results in ineffective control over tax returns in the examination stream, requires additional work to correct the information, and generates unreliable program information and reports. The auditors found that 22 percent of the 2,087 returns shown on the AIMS inventory validation listing for the locations visited were in error. The high error rate was attributed to inadequate validation testing; lack of training at the managerial, technical, and clerical levels on the purposes and necessity of the system; high clerical staff turnover; managers' apparent lack of confidence in the system; and the lack of cooperation and communication between managers in the Examination and Resources Management Divisions in the district offices. In addition, Internal Audit pointed out that achieving the other purposes of AIMS would need close management attention and data correction. Also, management should provide complete training on the purposes and necessity of the system and exhibit meaningful support for AIMS to assure the system operates as an effective management tool.

Examination also has a National Cash Register mini-computer system which is used basically as a word processing tool to generate examination reports and tax computations. Located at 69 district offices and posts-of-duty, the system contains a master list of over 1,000 standard explanations. Examiners select appropriate paragraphs from the master list which are printed on examination reports to explain adjustments to taxpayers. IRS encourages the use of these standard explanations to provide uniformity in report writing.

Employee Plans and Exempt Organizations

The Employee Plans (EP) and Exempt Organizations (EO) activities use two major automated systems to monitor and control its workload. These are AIMS and the EP/EO Application Control System.

Similar to Examination, EP/EO also audits returns. Consequently, AIMS serves EP/EO the same as it does Examination: securing returns, maintaining inventory control of returns, and providing management reports. As with Examination, the AIMS data base is updated for each return charged to EP/EO regardless of whether it is selected by a computer generated score or requisitioned by a tax examiner. Examination case forms and labels, and closings for both examined and non-examined returns, are processed through IDRS terminals. EP/EO assessments, adjustments, and other transactions, however, are processed through the tax processing system pipeline and posted to the master file accounts just as tax return data is processed. With the implementation of SCRS, EP/EO transactions, like Examination transactions, will be processed through SCRS rather than the pipeline.

To support the EP function, AIMS produces 18 reports: 3 processing reports and 15 inventory and production reports. The reports are produced on a monthly, quarterly, semi-annual and annual basis. To support the EO function, AIMS produces 18 reports: 7 inventory reports (e.g. number of returns by status) on either a monthly, semi-annual, or annual basis; 10 production reports (e.g. plan vs accomplishments) on a monthly, semi-annual, or annual schedule; and 1 quarterly miscellaneous report.

EP/EO also uses the Employee Plans/Exempt Organizations Application Control System (EACS). EACS, which operates on the service center IDRS system, is used to control applications from organizations requesting exempt status and determination letters for employee benefit plans. EACS is also designed to provide management reports on the status of each case in process as well as the overall inventory status.

Data is extracted monthly from the IDRS Plan Case Control File at each service center to generate management information reports. Tapes are shipped monthly from each service center to DDC where 8 monthly cumulative management information reports are produced for the National Office, regions, and each of the 10 key districts. In addition, data applicable to closed cases is extracted from the Plan Case Control File and EACS for updating the EPMF and BMF where master file accounts for exempt organizations are maintained. The extracted information is recorded on tapes which are shipped to NCC.

For the EP area, in addition to controlling all determination letter applications from receipt through final disposition, EACS also generates acknowledgements, internal control cards, and input and printing for determination and determination-related letters. EACS data is also used to establish new plans on the EPMF and to update the EPMF as changes occur.

In the EP area, individual case control records are initiated by direct input through IDRS terminals located at key districts and the National Office. In addition to the Plan Case Control File maintained on IDRS, an abbreviated record of each case is also maintained on a separate Plan/Organization Index File on IDRS to help locate a case record on Plan Case Control File if the case number is not known. For the EO area, all applications received by the key districts are date stamped and sent to the Centralized Services Branch at the district for entering into EACS. The applicable service center then produces forms and labels from EACS which are sent to the key district office. Service centers also mail acknowledgements to applicants.

Reports produced at DDC are the only management information reports used by EO to monitor EO/EACS accomplishments in the key districts. These reports identify valid applications received by the key districts. The DDC reports cannot be compared to the weekly reports produced by the service centers since their statistics are not adjusted for deletions or incomplete applications. DDC produces 13 reports for use by key district, region, and National Office management analyzing the inventory and case dispositions.

IRS' Research Division has recently initiated a Productivity Enhancement Study which will include determining the management information needs of EP/EO to propose recommendations for improvements. On the basis of the Research Division's efforts, EP/EO has already requested mini-computers off the recently issued mini/micro contract as well as additional software (see p.134).

Collection

The Collection function's major automated system is the Collection Activity Reports System (CARS) which is used to monitor operations, develop budgets, and analyze resource allocations. CARS is maintained on IDRS and contains information on accounts receivable, delinquent filers, and audit deficiency balance due accounts. Receivables accounts are established at the time assessments are made, accounts are updated from subsequent collection activity, and delinquent filers are established on the system when a delinquent condition is identified. The system will generate Taxpayer Delinquent

Accounts (accounts receivable) notices, Taxpayer Delinquency Investigations notices, reminder notices for taxpayers, and related documents for applicable field offices. When a taxpayer responds to one of four automatically generated notices, the system is updated to stop subsequent notices from being mailed.

While CARS was designed to capture and report data for management review and analysis as a by-product of collection transactions, Collection uses a Treasury computer to compile manually prepared information from the district offices. Forms containing the data are mailed to IRS' National Office where the information is key punched and placed on a computer in Treasury's Office of Computer Sciences. A total of 34 computer-generated reports and 12 manual reports are currently produced from these forms. IRS is planning, however, to automate the entire process.

As the result of a 1982 study, IRS is planning to implement a servicewide telecommunications network of minicomputers to eliminate using Treasury's computer and manually preparing forms. The first phase of the project called for the purchase of a VAX 11/750 "super mini" for delivery during March 1983. This equipment is expected to eliminate the need for maintaining paper files and producing reports at Treasury. Because of the system's advertised capabilities, Collection may also be able to eliminate fixed format reports by using the system's Query Language Processor to produce reports on an ad hoc basis.

A second phase of the project is being planned to establish a telecommunication network linking the districts and regions to the National Office system. This would eliminate key punching and mailing manually prepared forms to the National Office.

Criminal Investigation

The Case Management and Time Reporting System (CM&TRS) is the primary automated system used by Criminal Investigation. CM&TRS is designed to track the progress of cases and projects, accumulate time charged to investigations and other Criminal Investigation activities, and summarize data for budgeting and long-range planning. The CM&TRS data base, kept on the service centers' IDRS, is used for maintaining and updating cases and project data, recording time charges, producing district output tables, and preparing magnetic tapes for monthly regional and National Office output tables.

Both DDC and the Cincinnati Service Center produce CM&TRS reports. Each service center prepares monthly tapes from the CM&TRS files and data input monthly from district offices which are sent to Detroit and the Cincinnati Service Center for consolidation. DDC prepares 27 reports for district, regional, and National Office distribution while the Cincinnati Service

Center prepares 6 reports for the regions and National Office. DDC also sends magnetic tapes to the National Office where additional national and regional reports are prepared. In addition, other ad hoc reports can be produced.

Criminal Investigation is currently drafting a feasibility study analyzing the merits of having additional computer capability. The envisioned computer system would replace CM&TRS and allow Criminal Investigation to develop and maintain its own ADP applications as well as an electronic mail capability. The system's cost has been estimated to run as high as $20 million.

Policy and Management

Policy and Management activities include Planning, Finance, and Research; Human Resources; and Support and Services. In IRS' regions, these functions are conducted by the Resource Management function. The primary information systems supporting Policy and Management are an activity and time reporting system called the Direct Operations and Resources Measurement Systems (DORMS) and a Centralized Service's Work Planning and Control System (WP&C).

DORMS is designed to collect information on staff time and work accomplished in Policy and Management activities. Each employee in the districts, regions, and National Office in those areas under the Associate Commissioner for Policy and Management manually completes a time sheet. The time sheet contains some classifications common to all divisions as well as activity codes unique to the work of the particular division. Employees record their time daily and on a monthly basis submit completed forms to their managers who verify the correctness of information recorded. Managers then batch the time sheets which can be mailed directly to DDC or to the regional office. Some regions require the time sheets to be submitted to them first where they are then mailed to DDC. Detroit transcribes (40 to 50 characters per time sheet) directly to media and produces DORMS reports on its UNIVAC 1100/82. These reports typically combine information for the current month and fiscal-year-to-date totals. Of the 15 organizational components under the Associate Commissioner for Policy and Management, 6 have previously used DORMS, 6 began using DORMS during January 1983, and 2 plan to use DORMS after activity codes are developed. DDC, however, which recently came under the Policy and Management area, will continue to use a version of another system, PAC II (see p. 110).

DORMS produces a substantial number of reports for use by district, regional, and National Office management. A total of 142 reports are produced on varying schedules (monthly, quarterly, semiannually, annually, and cumulative year-to-date) which account for direct and indirect activities and show

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personnel on temporary assignments. In addition, personnel
extracts are produced on an as-needed basis. For example,
information from the personnel data base can be generated
showing servicewide figures.

DORMS procedures call for first-line supervisors to receive
and analyze the monthly reports showing how staff time was used
along with making necessary corrections. Regional and National
Office management also receive monthly reports for monitoring,
forecasting, and assessing program accomplishments and personnel
utilization.

Effective January 1, 1983, responsibility for computer
support for DORMS was transferred from the Central Region and
the Cincinnati Service Center to the Management Information
Systems Staff under the Assistant Commissioner for Human
Resources (see app. I). The Management Information Systems
Staff is currently conducting an evaluation to determine if
managers are getting the type of information needed to manage
their programs. This effort is looking at the total information
needs of managers and the cost of obtaining such data. There is
also a current effort to get Resources Management personnel at
service centers on DORMS. With the type and detail of
information already available on service centers Integrated
Management Planning Information System (see p. 31), this work
involves determining the steps necessary to obtain data from the
existing systems rather than having service center personnel
complete paper forms. DDC will, however, continue to provide
all computer support for DORMS.

The Centralized Services operation was created in 1978 to
provide centralized processing support for technical and
administrative programs in district offices. Previously, each
functional organization provided its own clerical and technical
support and had its own method for planning and controlling its
work. Today, Centralized Services' 1,000 employees in 60
locations process 150 categories of work for 7 customer organi-
zations using IDRS terminals. Work for the seven customer
organizations--Taxpayer Service, Examination, Employee Plans,
Exempt Organizations, Appeals, Collection, and Criminal
Investigation--is processed by Centralized Services' nine func-
tions: control, teller, terminal, typing, microfilm, closure,
files, clerical, and overhead.

To support timely and efficient work processing, a
Centralized Services' WP&C System was developed and implemented
in December 1982 to provide a uniform work monitoring system for
district offices. IRS is making its use mandatory for all dis-
trict operations with more than 40 permanent employees.

Because of the size and diversity of the workload, Centralized Services' managers need information to assist in planning, controlling, measuring, and directing the accomplishment of work. The WP&C system provides information daily, weekly, and monthly and is the basis for day-to-day, short- and long-range management decisions involving overtime, staff allocation, and the temporary reassignment of employees in Centralized Services.

Currently, the WP&C system is operational in the districts in the Central and North Atlantic Regions and the Baltimore District of the Mid-Atlantic Region. Compustar microcomputers in these districts capture data on employee time and inventory tracking which is then sent by telecommunications at the end of each day to the Four Phase computer (see p. 135) in the region where it is batched processed.

Since WP&C depends on the availability of microcomputers in district offices, Centralized Services is expecting to receive 30 to 60 microcomputers under the recently issued mini/micro contract that will augment equipment currently in place (see p. 134). Centralized Services also expects WP&C to use the equipment the regions receive to replace the Four Phase equipment. Centralized Services has been informed by Computer Services that the microcomputers obtained under the mini/micro contract may be of a size sufficient to process WP&C without the necessity of a host computer in the region. This cannot be determined until the contract is awarded.

Computer Services

The major automated system used by Computer Services is PAC II. PAC II is a commercially available software package used to aid managers in planning and managing projects. The system operates on DDC's Univac 1100/82 computer. Each week Computer Services' employees--all of which are at the National Office-- submit a time sheet to their respective coordinators which contains a breakdown of the number of days worked on a specific project. The coordinator consolidates the number of days worked on each project on a section-by-section basis. These totals are then coded on specially formatted data entry sheets and sent to a data entry clerk for input using nine terminals in the National Office which are linked to DDC's Univac 1100/82. The data entry process uses a prompter developed by DDC rather than the interactive text-editor provided with the system since the latter was viewed as too complicated for data entry operators. The master file is updated in batch mode and reports are produced weekly. While PAC II has the capability to produce 15 planning reports and 33 management reports, in practice Computer Services only obtains 5 reports which are produced on a weekly basis.

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On the basis of an October 1982 evaluation prepared by the the system's vendor, IRS decided to acquire an updated version of PAC II. To use it, IRS acquired a new prompter and interactive report processor, prepared a user's manual, and acquired conversion and installation support. The cost of this initiative was approximately $93,000.

In addition to PAC II, Computer Services has another system to monitor time frames and track the progress of its various projects which use a microcomputer in the National Office. Requests for Data Services (RDSs) are prepared by customer organizations or Computer Services itself and formally document the work. The requests range from asking for assistance on defining the requirements of a proposed system, to full scale implementation, to requesting maintenance changes to existing systems. The RDS Tracking System provides information on requests in two main categories. RDSs classified as in/review have been referred to the appropriate Computer Services component (Hardware Division, Software Division, Management Systems Division, or the Consulting Services Branch of the Hardware Division) on the basis of the nature of the request where they will be reviewed before approval. The RDS Tracking System monitors the 30-day requirement for Computer Services to act on the request. RDSs classified as in/process have been formally approved and work started. For these RDSs, the Tracking System monitors the time frames assigned to various developmental steps for the project. According to a Computer Services' official, plans are being developed to incorporate features of the RDS Tracking System into PAC II.

The RDS Tracking System is continuously updated, and bi-weekly reports are routinely prepared. A report produced for us on February 17, 1983, shows 163 RDSs in/review and 728 in/process. Appendix XIII is a listing of these RDSs by requesting function.

Taxpayer Service

IRS' Taxpayer Service function is supported by two management information systems and also relies on a statistical reporting system to manage its operations.

The Resources Management Information System (RMIS) is designed to capture data on Taxpayer Service activities for determining staffing requirements and aiding program management and evaluation. Maintained on IDRS at the service centers, RMIS collects information on workload volume and staff-hour expenditures for districts, with regional and National summaries, and compares this information with scheduled levels. Employees record unit and hour data daily which is summarized weekly and sent to a district IDRS terminal for transcription. Following guidelines issued by the National Office, the

districts prepare work staffing schedules for the overall
Taxpayer Service Program for each of the three planning periods:
17 weeks beginning in January, 22 weeks beginning April 30, and
13 weeks beginning in October. These schedules are sent
directly to the service centers for computer input.

Service centers process the performance data weekly and
produce three reports--weekly and fiscal year summary, analysis
of staff hours, and analysis of daily activities--for the
district as a whole, branches, groups, and posts of duty. While
the summary report can be called up on the IDRS terminals, the
more detailed reports are printed and mailed to the districts.
Service centers send tapes containing the updated information to
the Cincinnati Service Center which is responsible for producing
the regional and national summaries.

The Quality Management Information System (QMIS) is
designed to capture quality review data including detailed
information and analysis by location and time period. The data
base is maintained on magnetic tape at service centers and
includes:

--District identification. Identifies the location where
the work was done (generated by IDRS).

--Office designation code. Identifies the Taxpayer Service
Division branch, group manager, and post of duty.

--Julian date.

--Source of information code. Monitors by telephone, for
example.

--Position code. Identifies the occupational code of the
employee being reviewed.

--Quality review element code. Identifies the subject of
the taxpayer inquiry.

--Error and administrative deficiency code. Indicates the
nature or cause of a Taxpayer Service mistake.

--Technical assistance code. Shows the method used to
dispose of an inquiry. For example, referred to
Examination, Collection, Intelligence, or Problem
Resolution Office.

QMIS is based on weighted statistical samples of Taxpayer
Service activities. Forms completed by reviewers are sent daily
for IDRS input to update the data base maintained by the service
centers. Service centers send tapes with updated information to
the Detroit Data Center where numerous reports of branch,

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district, region, and national statistics are produced. These reports are produced weekly during the filing period (January through April) and monthly during the non-filing period (May through December). A redesign of QMIS, begun in 1981, is expected to produce significantly fewer reports.

QMIS gives management information for comparing results for corresponding periods of time. It also provides performance feedback to Taxpayer Service employees and helps insure that taxpayers receive the type of assistance they require. QMIS reports are used to measure the following:

--Error rate summary. Indicates accuracy rate of units sampled and quality review elements sampled for all source of information codes and locations within a manager's area of responsibility.

--Error and administrative deficiency by source of information. Indicates specific errors and administrative deficiencies that occurred during the period for each source of information with current cycle frequency and cumulative totals.

--Position code summary of quality review elements and errors. Indicates accuracy by position code for each source of information with current cycle and cumulative figures.

--Error and position code summary. Indicates specific errors by position code for each source of information with current cycle and cumulative data.

--Quality review element occurrence summary with error recap by source of information. Indicates accuracy rate for source of information for current cycle and fiscal year.

In addition to RMIS and QMIS, Taxpayer Service also has the Taxpayer Education Statistical Report which is used by regions and the National Office to monitor district office educational activities and resource expenditures in assisting specific groups of taxpayers (e.g. practitioner institutes and small business workshops).

Throughout the year, employees complete forms at the conclusion of the scheduled activity and forward them for review to the Taxpayer Education Program district coordinator. Forms are then sent to the Detroit Data Center which produces five output reports:

--Period and cumulative table showing district education summaries.

--Statistical indicators table showing relationships
between hours charged to Taxpayer Education Programs and
particular unit measurements.

--Plan versus actual table comparing district office
planning projections with actual activities.

--Prior year versus current year showing prior year
activities with current year.

--Travel/Per Diem Indicators showing types of costs charged
to each employee category.

TAX ANALYSIS AND ADMINISTRATIVE SYSTEMS

In addition to single user, functionally oriented systems,
IRS has other systems which support a number of IRS functions as
well as Treasury and the Congress. In its role of planning,
directing, and coordinating the analysis, design, development,
testing, and operation of non-returns processing applications,
DDC plays a key role in supporting these multifunctional
systems.

Role of DCC

Since it began operations in the early 1960s, DCC has
traditionally had responsibility for IRS' administrative
systems, its tax analyses systems, and many of its management
information systems. However, the March 1982 reorganization at
IRS, as well as recent decisions at Treasury regarding a
departmentwide payroll system, will eventually impact on
Detroit's workload as well as its role in IRS. Before the
reorganization, DDC was a component under the Assistant
Commissioner for Data Services. It is now under the Assistant
Commissioner for Support and Services who reports to the
Associate Commissioner for Policy and Management. Although no
formal relationship now exists between DDC and Computer
Services, in practice DDC is following the general operating
policies and procedures prescribed by Computer Services.

The following table shows DDC's present organization and
staffing level.

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TABLE 10

ORGANIZATION AND STAFFING
OF THE DETROIT DATA CENTER

Office/division	Authorized staffing plan
Office of the Director	7
Systems Coordination Staff	36
Management Staff	22
Data Conversion and Control Division	331
Fiscal Division	340
Systems Operation Division	135
Resources Management Division	79
Resources Systems Division	155
Statistics of Income/Management Information Systems Division	158
Total	1,263

The Data Center's present hardware configuration consists of a UNIVAC 1100/82 system acquired in November 1979. The system uses 2 central processing units, 2.5 megabytes of memory, 40 disk drives, and 46 tape drives. The two central processing units currently in place will be augmented by the addition of a third during Spring 1983 and a fourth which has been ordered for 1984.

DDC presently operates exclusively in a batch processing mode. Tapes are received and the information put on disks which are accessed or produced as needed. Aside from the relatively small role it has in supporting certain management information systems, most of the Data Center's workload consists of three programs.

Statistics of Income

The Statistics of Income (SOI) Program fulfills IRS' legislatively imposed responsibility of publishing statistics on the operation of tax laws. There are three general categories of SOI reports. Individual, corporation, and unincorporated business statistics are published annually on a routine basis. Second, the Congress periodically calls for reports on the impact of new legislation, such as the windfall profits tax. The third major category is reports which are requested by the Joint Committee on Taxation or the Office of Tax Analysis (OTA)

SOI data is based on stratified random samples of returns. Reports are published on varying schedules for returns on individuals, corporations, partnerships, fiduciaries, estates,

gift, farmers' cooperatives, other tax exempt organizations, and
employee plans. Schedules attached to some returns have also
become the subject of their own SOI reports, e.g. sole
proprietorships (Schedule C).

Data for SOI is obtained by two methods. Some SOI data is
obtained during returns processing at service centers or NCC
where information is statistically selected from returns or
accounts and recorded on an SOI tape. SOI data which is not
originally key-entered during returns processing and thus not
available from routine returns processing is collected on
manually prepared abstract sheets. This information is then
key-entered onto tape at DDC. All SOI reports are produced at
DDC and account for about 25 percent of Detroit's workload.
Although the SOI programs presently use magnetic tape, IRS is
considering the possibility of maintaining an SOI data base on
disks to allow for interactive processing.

SOI reports have been used extensively for tax research and
estimating tax revenue and especially by the Department of the
Treasury for evaluating the effect of new legislation on the
taxpaying public and assessing the desirability of new
legislation. Initially, the Revenue Act of 1916 required the
annual publication of statistics. This requirement has been
carried through each major rewrite of the Code and is currently
contained in section 6108 of the 1954 Code. The number of SOI
reports has increased recently because of revisions to the tax
law requiring separate OTA reports to the Congress. These
revisions required statistics on such topics as individuals with
high income, the operation of jobs credit provisions,
international boycott participation, taxation of corporate
income from U.S. possessions, and income of citizens working
abroad. OTA makes extensive use of other SOI data in its
economic models.

Besides OTA and the Joint Committee on Taxation, a third
major Federal user of SOI information is the Bureau of Economic
Analysis (BEA) in the Department of Commerce which uses the data
to help update the National Income and Product Accounts.
Information obtained from the SOI program is also used
extensively throughout the Federal Government for a variety of
purposes.

Although no special computer equipment is required for SOI
processing, there is sometimes a requirement for a special
programming language to conduct statistical analyses. Because
this language can only be used on IBM or IBM-compatible
equipment, IRS contracts out this work to another Government
computer facility. The Assistant Commissioner for Returns and
Information Processing has ordered a feasibility study comparing
the costs and benefits of buying a minicomputer for this work
with the cost of continuing to use the other Government
facility.

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IRS' Internal Audit Division recently completed a review of the SOI program and is expected to issue a report shortly. The objectives of its review included

--assessing the effectiveness of the program, including consideration of user needs, timeliness and accuracy of products, and adequacy of DDC's computerized validity and consistency testing;

--determining the efficiency of the program, how well SOI identified areas where duplication could be present, and what steps were taken to reduce inefficiencies; and

--examining the adequacy of security over tax returns, edit sheets, microfilms, and computer tapes.

Another major evaluation effort currently underway involves a consulting contract for identifying ways to enhance SOI programs and processing.

Taxpayer Compliance
Measurement Program

The Taxpayer Compliance Measurement Program (TCMP) is designed to measure voluntary compliance for filing returns, paying tax liabilities, and filing accurate returns. As such, TCMP supports Examination, Collection, and EP/EO and comprises approximately 30 percent of the Data Center's workload.

TCMP surveys for a particular type of return are called phases. There are currently 10 TCMP phases:

Phase	Title
I	Delinquent Accounts Survey of Bills and Notices and Taxpayer Delinquent Accounts Issued
II	Delinquent Returns Non-Farm Business Survey
III	Individual Returns Filed Survey
IV	Corporation Returns Filed Survey
V	Estate Tax Returns Filed Survey
VI	Exempt Organization Returns Filed Survey
VII	Fiduciary Returns Filed Survey
VIII	Employee Plan Returns Filed Survey
IX	Individual Non-Filer Survey
X	Form 1065 Partnership Returns Filed Survey

Since TCMP is an ongoing effort, the various phases may be repeated over a period of years. To account for the repetition in phases and the different results, each effort is assigned a cycle number.

Approximately 5 years are required to complete a TCMP survey, beginning with preliminary planning and concluding with output tables and a tape file for developing DIF formulas. The various activities of a typical TCMP survey are grouped around nine elements which overlap each other to some extent.

Event	Timeframes (in months)
Preliminary planning	7
Sample design	18
Selection of returns	12
Development of check sheet	12
Development of training program for Examination personnel	5
Examination	19
Checksheet processing	27
Output tabulations	30
Analysis of results	3

Preliminary planning for the area to be measured sets objectives and considers available resources which act to further define the scope of the survey. Following planning, the sample design is finalized. A computer program is then designed to randomly select the number of returns necessary to meet the design requirements. A computer systems analyst takes requirements developed by a statistician and translates them into computer specifications which, in turn, are used to program the computer to stratify and select returns meeting the criteria. The program is then tested to ensure it selects only returns that meet the specified criteria.

During the returns selection stage, the selection universe includes all returns processed during the entire calendar year. As filed returns are processed by service centers, they are selected on the basis of the computer program which is integrated into the tax processing system. A sample selection tape is created by NCC and sent to the Data Center which uses it to form the basis of a series of reports encompassing the Progress Reporting and Control System (PR&C). In addition to controlling the sample (each return must be accounted for), PR&C also generates reports for monitoring sample selection and survey progress. NCC also produces four other tape files which are sent to service centers for use during the program: Document Transmittal, Index Card, IMF strip-off, and AIMS Opening Tape Files. In addition, NCC produces an Information Returns Program Crossover Tape File which contains IRP data for returns in the sample.

In order to collect the data necessary during the audits of the selected returns and ensure its uniformity, checksheets are used to record information shown on the return and the amounts and reasons for any changes in tax liabilities. In addition, other data can be collected which may lead to operational improvements, legislative recommendations, or changes to enforcement strategies. Examiners conduct indepth examinations on TCMP returns and any related return. The returns, audit determinations made by examiners, workpapers, and checksheets are all subject to a 100-percent review to insure the quality and depth of the examination and the checksheet's accuracy.

The reviewed checksheets are sent to DDC where they are transcribed and subjected to several hundred computer validity and consistency checks to identify any previously undetected checksheet errors or transcription errors. Once all errors have been corrected, a perfected tape file is created. From the perfected tape, output tables are generated some of which are diagnostic in nature and used to further ensure the file is accurate. When the tape file is determined to be accurate, it is used to produce additional output tables to display the audit results in various combinations. The tables are analyzed and used to measure trends in voluntary compliance between cycles.

The tape file is also used to develop DIF formulas. Both IRS and an outside contractor develop DIF formulas from TCMP results.

Payroll processing

Processing the IRS payroll is the main function of DDC and accounts for about 40 percent of its workload with over 85,000 accounts to process bi-weekly. Current and planned modifications will restructure the Payroll/Personnel System with a substantial impact on Detroit's workload. Conversely, a Treasury initiative to incorporate IRS' payroll with a Treasurywide system to be run at a Department installation in Washington could dramatically reduce DDC's workload.

IRS' payroll system is basically a batch processing operation which begins and ends at the Data Center with interim processing support by IRS' 10 service centers. Each pay period, time and attendance (T&A) forms are prepared in DDC showing the employee's name, social security number, region, office code, fiscal distribution code, pay period number, pay period ending date, and annual leave category. T&A records are then sorted by office and fiscal distribution code and sent to the local centralized timekeeping unit. Regional Payroll/Personnel Coordinators specify where T&A forms are to be sent for processing. About two-thirds of the T&A forms are initially processed in service centers on the DDES and the remainder are initially processed at DDC.

At the service centers, T&A data is (1) transcribed, (2) converted to magnetic tape, (3) passed through an error resolution process, and (4) shipped to Detroit for further processing. Scheduling the shipment of T&As between IRS offices and the appropriate service center is done locally as is scheduling the shipping of T&A paper records and the input tapes between each service center and DDC.

DDC key punches the paper T&As it receives and converts the cards to magnetic tape which is used with the tapes from service centers to update the Employee Master File on its UNIVAC 1100/82. It then generates new T&A cards for the following pay period as well as error and earnings documents. Check tapes are sent by airmail to Regional Disbursement Offices where the IRS is modernizing its Payroll/Personnel System with the Time and Attendance Data Entry System (TADES). TADES was developed by DDC to allow for terminal input of T&A data and on-line error correction. The use of TADES in each office will eventually be mandatory, although the Director of each district, service center, DDC, and NCC has authority to approve the most cost-effective and practical implementation approach.

Although TADES is only an interim system designed to expedite the T&A input process, it is a preliminary step in modernizing the entire Payroll/Personnel System. Other enhancements are planned over the next several years which will restructure the overall system and transform the current batch-oriented system into an on-line system equipped with a telecommunications network for remote terminal input, validation, and error resolution.

TADES was piloted and initially implemented in the Central Region and is currently operational in the North Atlantic Region, DDC, the Chicago District in the Midwest Region, and some National Office components. At these locations, TADES has now replaced the earlier system and paper T&As are sent to DDC for audit purposes only. Implementation of TADES is underway in the balance of the Midwest Region, and Western Region and the remaining regions are scheduled to implement TADES by October 1983.

As part of the Modernization Project, approximately 270 terminals and 100 printers will be acquired servicewide to inter-actively link offices to the Employee Master File in DDC. The cost is approximately $7.6 million over the 8-year projected life of the equipment. IRS projects a net savings of about 130 staff years the first year or $32 million over the 8 years. Intangible benefits include immediate availability of data for management information requirements, more accurate data provided DDC because of on-line error correction, the ability to perform on-line payroll/personnel adjustments, and sufficient growth capacity to accommodate personnel/payroll processing for other Treasury bureaus.

Until recently, the payroll at other Treasury bureaus was processed centrally through a remote terminal input network linked to an IBM 370/155 at the Bureau of the Mint's computer facility in San Francisco. This system was used to process payroll transactions for about 45,000 accounts in the Treasury Payroll/Personnel Information System (TPPIS). In June 1982, the Mint's facility was closed and Treasury moved its TPPIS processing to a commercial computer facility in Florida. Because of excessive costs under the contract, Treasury decided in late 1982 to move the TPPIS operation to an ITEL computer in Washington which the Customs Bureau was in the process of excessing. Since TPPIS only requires bi-weekly processing, Treasury plans to use Custom's facility as a timesharing operation which would solicit work from Treasury bureaus as well as other Government agencies. The Department already has such a timesharing facility in its Office of Computer Sciences, but believes it will require both sites.

Concurrent with its decision to close the Mint's facility, Treasury also decided to develop a payroll system for all of its bureaus to use called the Treasury Uniform Management System (TUMS). Numerous studies for some time had recommended that Treasury consolidate both payroll systems--TPPIS and IRS'--into one departmentwide system. The latest study was one released in December 1981 by the National Academy of Public Administration which concluded that the most cost/beneficial solution would be to

--establish a Treasury-wide payroll system by modifying and enhancing IRS' system and abandoning TPPIS;

--assign DDC responsibility for developing, operating, and maintaining the new system; and

--contract with IRS to serve as the Department's agent in providing the service.

Treasury instead chose to develop TUMS, which is expected to be fully operational in all Treasury bureaus except IRS in late 1983 at which time IRS will begin incremental conversion to TUMS.

In the interim, IRS is continuing with its payroll modernization project in case the development of TUMS is delayed. In addition, IRS believes that many segments of its new payroll system would be transferable to TUMS even once its functional specifications have been defined. IRS also believes that the TUMS specifications might possibly evolve from the new IRS system rather than from independent development efforts.

MAJOR AUTOMATED INFORMATION
SYSTEMS UNDER DEVELOPMENT

IRS has long recognized the need for automated information systems that would increase operational efficiency and staff productivity, and provide more useful management information so that limited IRS resources could be freed for tax administration purposes. Accordingly, it has embarked upon a program to develop systems capable of providing management with information necessary for making timely and informed decisions. These systems will also reduce a number of repetitive, labor-intensive, manual operations.

IRS' objectives for its automated information systems are

--to improve planning and decisionmaking by improving the scope, timeliness, and accuracy of data available for managers;

--to make pertinent information accessible to all managers
and provide them with automated tools for analyzing this
information;

--to cut manual processing in labor-intensive operations
and reduce the number of clerical tasks performed by
technical professional personnel to increase
productivity; and

--to take advantage of state-of-the-art technology for all
automated information systems.

To satisfy these objectives, IRS' fiscal year 1983 budget
request included 300 positions and $75.3 million for ADP
modernization. The fiscal year 1984 budget request doubled the
number of positions to 600 and requested $93.0 million to
provide continued support of its modernization projects. The
following information focuses on the major systems now under
development to meet IRS' objectives.

Decision Enhancing Management
Information System

A starting point in IRS' plans for meeting its automated
information systems objectives will be the implementation of the
servicewide Decision Enhancing Management Information System
(DEMIS). Currently, IRS does not have a management information
system which provides cost and benefit information for all of
its products, services, and programs. Previously, systems were
developed for individual users which could not provide
information for programs which crossed functional lines. With
data that presents a total program and agency perspective, IRS
could make better and more informed decisions regarding resource
allocations and operational issues. Toward this end, DEMIS will
incorporate data from all functional and administrative systems
and will be the primary tool for integrated analysis, planning,
and decisionmaking.

IRS began to address the need for a system such as DEMIS
with a management information task force formed in 1976. In
1979, the task force recommended a servicewide system to provide
managers with cost and accomplishment information that would
cross functional lines. DEMIS is intended to be IRS' major
overview system to address the recommendation of the IRS task
force as well as our recommendation that IRS implement a system
to provide cost, revenue, and other needed data from a total
program and agencywide perspective (app. III, GGD-82-34).

As currently envisioned, DEMIS will classify information in
six basic data elements: productivity, cost, quality, schedule
attainment, resource allocation, and performance. Information
will be extracted periodically from 40 automated systems

currently in operation. These systems cover over 75 products, services, and programs. Extracted data will be converted for compatibility, summarized, and, if necessary, modified to allocate within and across functions. The integrated data will be forwarded to the various functions where it will be incorporated into the appropriate data base. DEMIS will not replace currently operating information systems. Instead, it will rely on them for data. Also, future systems will provide information to DEMIS to the extent the data they contain is applicable.

DEMIS is expected to require 10 years and $13.2 million to develop and implement. The current plan is to initially establish the system in the Mid-Atlantic and Central regions and for the functional components under the Associate Commissioner for Operations in the National Office. The initial system is expected to cost $1,056,000 for equipment and staff and will be tested for 17 months. The Detroit Data Center will be responsible for applications design and programming and will use its UNIVAC 1100/82 as the host computer. Work stations with terminals linked to the host computer will be established in three test locations. Data extracted and summarized for these locations will form the initial DEMIS data base. Also during the test, data element usage statistics will be collected to permit any necessary system modification before servicewide implementation.

Several constraints may impede servicewide implementation of DEMIS. First, because there is no specific plan for acquiring and integrating a network of computers, expanding DEMIS beyond the initial test will be delayed until one is developed. Second, it is currently impractical to extract data from existing automated systems since equipment supporting these systems is scheduled to be replaced. Third, work on a servicewide output/resource/yield structure, which is important for providing commonality of data elements and identifying information gaps, is not scheduled for completion until 14 months after approval of the initial test.

Automated Computerized
Examination System

Although some portions of IRS' tax examination process have been automated over the years, it is still a highly labor and paper intensive process. A return is pulled from a Federal Records Center, processed through classification, and sent to a district examination office. There, workpapers are prepared, tax computations made, reports written, and letters mailed. The case file is eventually sent back through the service center to the records center after being handled by the Centralized Services Branch and possibly Quality Review and Appeals.

This unwieldy and paper-oriented system is almost entirely manual. The paper flow and the cases themselves must be monitored, filed, purged, and otherwise controlled. The primary controls currently used by IRS are reports generated from the AIMS data base (see p. 102) which are based on documents manually prepared at various points in the examination cycle. Additional management and technical time is frequently spent gathering data to prepare reports not available from computer systems.

IRS is proposing to alleviate these problems with the Automated Computerized Examination System (Auto Exam). The concept of Auto Exam was developed in a January 1982 feasibility study which reviewed the examination process and described what improvements could be made in

--the use and accessibility of ADP information

--the handling of tax returns and tax return information before, during, and after the examination, and

--the management information system.

IRS estimates it could increase annual examinations by 505,000 by minimizing or eliminating the paperwork involved in conducting and monitoring tax examinations and redirecting these resources toward achieving a higher percentage of audit coverage.

Although the specific capabilities of Auto Exam have yet to be determined, over 60 potential features were identified in the feasibility study. Auto Exam will be a totally integrated and computer controlled inventory management system that will enable the electronic transfer, storage, and access to a much larger data base of returns and return information. The functions to be automated will include

--classifying and scheduling cases;

--sending audit reports and correspondence to taxpayers;

--processing cases with cases ranked by age and status;

--citing applicable laws, regulations, and issues;

--managing and controlling information; and

--recording and tracking time.

In November 1982, IRS formed an acquisition team for Auto Exam with a staff of approximately 50. The group will be responsible for preparing a Request for Proposals and monitoring the procurement until the system is fully implemented. The

request is scheduled to be released in April 1983 and will call for a four-phase procurement. Each phase will specify a deliverable product which will be evaluated to determine which vendors will be allowed to continue in the competition.

In the first phase, IRS will solicit design concepts and evaluate vendor proposals for performing a design and analysis of the system on the basis of the user requirements specified in the request. During the second phase, selected vendors will complete the design of their proposed systems. In the third phase, hardware requirements and overall costs will be proposed and evaluated by IRS. The final phase--presently scheduled for 1987--will consist of pilot testing the systems proposed by the remaining vendors in order to make a final selection.

Although it is obviously too early in the procurement process to estimate Auto Exam's cost, it will most certainly be substantial. One estimate--probably conservative--has been set at $77 million through fiscal year 1987. Aside from the cost of the system that is eventually selected, IRS will also have to reimburse vendors for products delivered in the last three phases of the procurement. An initial request for $3.4 million is in the fiscal year 1983 budget to begin design development efforts.

IRS' Internal Audit Division initiated an on-line review of Auto Exam when the acquisition team was formed. Approximately 400 staff days have been budgeted to continue the review in fiscal year 1983.

Computer Assisted Audit Program
Interactive/Remote Job Entry System

The Computer Assisted Audit Program Interactive/Remote Job Entry System (CAAPIRS) will provide Examination's computer audit specialists with in-house computer support in auditing large national and multinational corporations that maintain automated accounting systems and other computerized records. IRS presently has agreements with over 3,600 of the largest U.S.businesses to retain machine-readable records specifically for examination purposes.

The CAAPIRS Request for Proposals was released in December 1981. Phase one of the technical evaluation was completed in May 1982, and operational demonstrations were held during August that same year. The initial installation phase will consist of a network of 34 interactive programming and intelligent remote job entry terminals in various regional and district offices with upgrades available to a maximum of 41 sites. Pipeline data will not be used. Instead, CAAPIRS will use dedicated communication links with commercial time sharing facilities as well as the Detroit Data Center which will have the accounting

records available for access by the auditors. As of April 1983, no operational date for CAAPIRS had been established. The system is estimated to cost $19.8 million through fiscal year 1988.

Automated Collection System

The processing of accounts receivable and delinquent returns investigations is the responsibility of IRS' Collection function. After cases are identified and classified as either a TDA or TDI, they are put on file on the IDRS at a service center which generates taxpayer notices (see p. 106). If no response is received after the fourth TDA or TDI notice, the cases are sent to district collection activities who attempt to contact the taxpayer and make arrangements for payment or filing. If successful, these agreements are also monitored by district collection offices.

In the districts, TDA's and TDI's are batched in groups of up to 500 cases and are manually reviewed every 32 workdays to determine the next action. Up to three IRS employees may be involved with each review: a reviewer who analyzes the case and decides the next action, a clerk who prepares letters and forms, and a contact employee who initiates taxpayer contact.

The problems inherent in such a manual and paper-oriented operation have been apparent to IRS for some time. According to the Service, manually processing large numbers of assignments does not permit timely monitoring and followup on individual cases. Promises to pay or file can be 4 to 5 weeks overdue before IRS is able to initiate enforcement efforts. This delay reduces collections, contributes to still higher case inventories, and encourages non-compliance. Moreover, maintaining a large number of cases in manual form produces even more paperwork. Payments and other actions are transcribed onto computers using other paper documents in order to update case histories. Every paper document must be counted, sorted, and batched with additional paper documents created to monitor the volume and flow of paperwork.

In response to these problems, IRS is developing an Automated Collection System (ACS) to provide more efficient case inventory management and better collection efforts through improved computerized record keeping, telephone technology, and management control. Collection personnel will have a paperless work process, automated telephone dialing, and computerized techniques for locating and delinquent cases. The system will also produce a number of reports on employee, unit, and system productivity.

ACS will consist of a network of 30 computer systems to be located at each of the 10 service centers and at 20 call sites to be established in large metropolitan areas. Each service center ACS computer system will support two call sites. Each call site, in turn, will be responsible for an average of three IRS districts.

The service center ACS computers will transmit case files and updated account information to its associated call sites via telecommunications lines. A service center ACS computer system will only be able to interface with the data bases of the two call sites associated with it. Similarly, a call site cannot access the data base of any other call site.

TDA and TDI notices will continue to be generated at the service centers on IDRS. The real contribution of ACS will be in the processing of these cases by field collection staff. At each call site, the computer will set the workload in priority order and totally control the delinquent cases until resolution or completion of office processing. Each day, collection staff will sign on to a terminal and begin work by requesting the next case. The system will display the next highest priority case and, when instructed, automatically dial the taxpayer using the most cost beneficial circuitry. If the number is busy or there is no answer, the computer will reschedule the case for later telephone attempts. For completed calls, the caller will input history items, payment dates, followup dates, levy sources, call back times, and other pertinent information. As soon as one call is completed, the next case is requested.

Although a final contract has yet to be awarded for the hardware and software ACS will require, IRS expects the system to have a 6 to 12 year life and cost over $300 million. The Service expects to collect between $1.5 and $1.7 billion in additional revenue during the first 6 years of the system's use. ACS will allow a reduction of about 1,700 clerical and technical positions; however, some of these positions will be converted to revenue officer positions.

The Request For Proposals for ACS was released in February 1982. In November 1982, IRS awarded contracts to two vendors to develop systems for pilot testing scheduled to begin in May 1983. Under the terms of the testing agreement, one system was installed at the Kansas City Service Center with call sites at Chicago and St. Louis that serve the Chicago, Milwaukee, and Des Moines Districts and the St. Louis and Springfield Districts, respectively. A second system was to be installed at the Memphis Service Center with call sites at Indianapolis and Nashville to serve the Indianapolis, Louisville, and Parkersburg Districts and Nashville, Greensboro, and Richmond Districts,

respectively. However, the vendor for the second system could not meet IRS' technical requirements. Consequently, the contract with this vendor was terminated. ACS is expected to be fully operational IRS-wide by July 1984.

In conjunction with the ACS procurement, IRS is also contracting for vendors to research and provide telephone numbers for TDA and TDI cases. Phone numbers for most individuals are presently on a number of commercial computer data bases. IRS will supply the vendor with a magnetic tape containing the names, addresses, and other identifying information of individuals who had not responded to a third TDA or TDI notice. The vendor would then match this tape against the information on the data base and return the file to IRS so that, if no response is received after the fourth notice, the cases can be put onto ACS with a phone number. Because business phone numbers are not generally contained on any computerized data base, IRS is also contracting for the manual research needed to supply them. This vendor will also provide phone numbers for individuals which, for one reason or another, cannot be provided by the first contractor.

IRS' Internal Audit Division is conducting an on-line review of ACS in three phases. The first phase reviewed all of the activities which led to the issuance of the Request for Proposals. The May 1982 report contained no significant discrepancies. The second phase reviewed the evaluation of bids, and a report is expected in the Spring or Summer of 1983. The final phase will review the pilot test evaluation and the final contract award. In all, internal audit has budgeted approximately 1,300 staff days to review ACS.

Centralized Inventory and Distribution System

The Centralized Inventory and Distribution System (CIDS) will be the primary logistical support system used by the Service to manage its $100 million annual printing and transportation budget and will replace the current Inventory Control and Distribution System (ICADS). While ICADS focuses primarily on supporting inventory management, requirements analysis, and transportation selection, it does not provide on-line order entry and processing, order selection, warehousing functions, automated exception processing and in-depth data base query capability--features to be incorporated into CIDS.

Currently, IRS' physical distribution system supplies printed products to 700 IRS offices and to the taxpaying public which annually places over 11 million orders by phone. Tax forms, schedules, publications, instructions, training material documents, Internal Revenue Manual issuances, and other internal use forms are distributed through a nationwide network of 8 regionally operated distribution centers and 59 district

warehouses. IRS believes that providing necessary forms to the taxpaying public in a timely manner is an essential ingredient of a tax system based on voluntary compliance. Moreover, effective tax administration requires that each IRS office have ready access to the numerous tax and internal forms employees use on a daily basis. Toward this end, IRS believes CIDS will offer the following improvements:

--Improved responsiveness in filing orders through the speed and accuracy of automated order processing. Overall costs will also be reduced by minimizing errors and duplication of effort.

--Transmitting data electronically will minimize handling costs by eliminating many clerical tasks. It will also reduce the nationwide staffing required for the forms distribution functions.

--The large computerized data base will eliminate the need and expense of maintaining many duplicate paper files as well as assuring a higher degree of data integrity. Using this data base will improve the ability to forecast forms requirements and will also reduce costs associated with excess stock throughout the distribution pipeline. Better forecasting, in turn, will lead to reduced volume and costs of backorders.

CIDS will replace ICADS which is run at a commercial time sharing facility. Running CIDS on IRS computers should result in an overall net savings of $4 million annually. As currently planned, CIDS will consist of a central computer at the National Office, a front-end processor, high speed printers, and 600 terminals. The system will link the 47 district offices where the toll-free telephone sites are located, service centers, regional offices, and the National Office, with three large centralized distribution centers which will be reduced from the current number of eight. The centers will be in the eastern, central, and western parts of the country although the specific sites have not been determined. The system is expected to cost $20 million over a 5-year systems life which begins in 1986. Development costs will reach about $5.4 million through 1986.

IRS faces two potential problems in implementing CIDS. First, CIDS must be installed, accepted, and operating before September of any given year so as not to interfere with the January through May peak processing period. Second, the future of the Taxpayer Service Division--which operates the toll-free telephone sites--is uncertain. Accordingly, other alternatives need to be developed to replace the Taxpayer Service Representatives who currently take telephone orders from taxpayers. Barring any unforeseen circumstances, the system is expected to be installed by November 1984.

Centralized Authorization File System

As part of the SCRS implementation (see p. 63), IRS is computerizing its Power of Attorney file which identifies individuals authorized to represent certain taxpayers. The system, referred to as the Centralized Authorization File System, will be implemented during phase II of SCRS. The data base will be maintained by the IRS service centers on IDRS and will be accessible to district and service center personnel through IDRS terminals.

Counsel/Appeals Tracking System

The Counsel/Appeals Tracking System (CATS) will consist of case tracking information for Counsel and a computerized data base capturing work unit information for Appeals, and providing up-to-date operational and management reports. Counsel and Appeals are both involved with resolving disputed audits. The role of Counsel is to handle litigation in the Tax Court and advise IRS and the Department of Justice on refund suits, criminal tax cases, disclosure suits, collection suits, and nontax suits involving IRS in Federal and State courts. Appeals has primary responsibility for reaching agreement with taxpayers administratively before litigation. When fully implemented, terminals in Appeals Offices, District Counsel Offices, regional offices, and the National Office will be linked to DDC's UNIVAC 1100/82 computer. The on-line, interactive system will provide regular reports as well as a query capability. Full implementation of CATS will replace existing manually prepared and computer generated management reports and will improve case tracking capabilities.

CATS is the result of a 1978 study and although development responsibility was combined at one time, it has since been divided. Counsel and Appeals have each designated a coordination staff. On the Counsel side of CATS, IRS awarded a contract to Viar and Company who is now working to modify the case management system it developed and sold to the Virginia State Corporation Commission who, in turn, sold the system to IRS. Modifications are needed to tailor the system to IRS needs.

For the Appeals portion of CATS, the Data Transformation Corporation--a GSA designated vendor--provided assistance in defining system requirements. Recently, IRS has terminated the contract because, in the view of Appeals, the contractor lacked the necessary expertise. Work to further refine system requirements and the programming, however, is continuing within Appeals and at Detroit. DDC is also changing the design to address security concerns and assure the Appeals' portion of CATS appropriately interfaces with Counsels'.

Current plans call for a 3-month test of the prototype system for Counsel to begin in April 1984 while a test of the Appeals system will commence 1 month earlier. Both tests, to be conducted in the Mid-Atlantic Region and the National Office, will use 50 of the 120 terminals and 43 of the 105 printers specified in the Request for Proposals. Initially, 2 of the 12 Chief Counsel divisions--Tax Litigation and Appeals--will use CATS with other divisions to be added later.

The May 1980 feasibility study for CATS estimated a 5-year system life and a total cost of $50 million broken out as follows:

Counsel	Cost
Developmental cost	$ 1,171,000
Operations cost	7,263,000
	$ 8,434,000
Appeals	
Developmental cost	1,565,000
Operations cost	40,372,000
	$41,937,000
Total	$50,371,000

OFFICE AUTOMATION

Office automation, unlike an information system, is oriented more toward eliminating or reducing routine, labor-intensive office or administrative functions as opposed to providing information for management decisions. The Service has committed itself to providing "* * * both generalized and customized office systems to IRS users servicewide."

Conceptually, project planning for office automation is the process of evaluating the role of office automation, establishing an organizational component for guiding and monitoring the automation projects, determining the resources or automation capabilities needed, and developing a procurement strategy and procedures for acquiring the capabilities. These steps provide an orderly process for introducing office automation systems into an organization.

While IRS has established a group to oversee office automation projects, its role, as well as the role of office automation in IRS, is still being defined. In the meantime, a number of office automation projects and procurements are proceeding under different procurement approaches. The following is a discussion of the newly created Office Automation Support Branch, the various procurement approaches being used

throughout IRS, and several of the office automation projects underway: the Regional Office Automated Management System, the Office Automation Study for Inspection Services, the Office Automation Returns and Information Processing, and the Commissioners Correspondence Tracking System.

The Office Automation Support Branch

In November 1982, IRS created the Office Automation Support Branch in the Facilities Management Division under the Assistant Commissioner for Support and Services. Currently, this Branch has a staff of 10, but the Assignment Staffing Plan calls for this number to increase to 27 during fiscal year 1983. The role of the Branch will be important since its functional statement says it will establish policies, plan, develop, promote, coordinate, and evaluate servicewide programs to improve the productivity and effectiveness of operations through the analysis, requirements definition, and implementation of locally initiated office automation systems. "Local" is defined as at the regional level or below as opposed to interregional. Consequently, the Branch would not have a role in a project involving telecommunications between two or more regions. If, however, a project involved telecommunications limited to one region and its districts, the criteria would be met.

The role of the Branch is to function as an internal consultant to the districts and regions by assisting users in analyzing their needs and preparing documents such as feasibility studies which are necessary for obtaining equipment and systems. In this regard, the Branch participated in the development of a mini/micro computer feasibility study and has also provided staff to participate on a technical evaluation team for a contract currently being evaluated. It is also envisioned for the Branch to have a "clearinghouse" function through which information on systems currently operating will be shared. By maintaining such an inventory, IRS hopes to avoid duplicative systems development efforts.

IRS regions have also become involved in office automation planning on their own. The Western Region has established an office automation program and has created a model for how it will be structured which will be provided to other regions for consideration. The Southwest Region and the North Atlantic Region have also formally established office automation programs.

In addition to IRS' office automation initiatives, the Department of the Treasury has also taken action. The Assistant Secretary for Administration has established a departmentwide group composed of representatives from all of Treasury's bureaus. The role and plans for this group, however, have yet to be determined.

Mini/microcomputer contracts

To reduce systems proliferation and to achieve some degree of standardization, IRS is proposing to purchase a large number of mini and microcomputers to make available to the Regions and assure compatibility of hardware, software, and operating systems. In October 1982, the Service released a Request for Proposals calling for a minimum purchase of 120 minicomputers and 200 microcomputers during fiscal years 1983 and 1984. The request established maximum purchase quantities of 350 minicomputers and 600 microcomputers which could be increased by 25 percent at IRS' option. For comparative purposes, IRS defined minicomputers as having up to 128,000 bytes of memory and microcomputers as having up to 48,000 bytes of memory. The minicomputers are to include more sophisticated hardware and software features and allow two to ten work stations to be linked to a single data base. The microcomputers are to have financial planning software and optional word processing capabilities and be programmable in BASIC language.

The expected life of the systems is 5 years while the expected costs range considerably. The feasibility study estimated the cost of hardware, software, and maintenance for the minimum purchase of minis and micros to be $6.8 million. If the maximum number of systems is purchased, including the option for an additional 25 percent, the cost could exceed $25 million. To satisfy its requirements, IRS contracted with Zilog, Inc. and Sanyo, Inc. in May 1983 for minicomputers and microcomputers, respectively.

The rationale for this method of purchasing computers is not based on any specific tasks or functions to be automated. Rather, it is based on the idea that many activities have the potential for automation and are common to most IRS offices. In this regard, IRS foresees other benefits from obtaining the minis and micros beyond the standardization of hardware and software. IRS believes that having the equipment on hand will reduce the time required by the regions to acquire the equipment on their own by 50 percent, reduce software development efforts by 50 percent due to sharing, and increase productivity without additional staffing.

Internal Audit reviewed the feasibility study and found that all applicable Federal procurement guidelines were being followed. In addition, alternative solutions were identified and the reasons for the recommended solution were adequate. Internal Audit also found, however, that the costs and benefits of the alternative solutions were not mathematically accurate or adequately documented. Also, although the study's assumptions and logic were reasonable they were not supported by documentation. Internal Audit recommended and management agreed to construct documentation supporting the assumptions and cost analysis. Management also agreed to establish procedures requiring that documentation be retained for future feasibility studies.

Regional procurement authority

At the end of 1981, before initiating the mini/micro-computer contract, Regional Offices were delegated authority to purchase office automation equipment and services which, in the aggregate, do not exceed $50,000 for each requirement. As a result, Regional Offices began to purchase minicomputer and microcomputer systems for local requirements and are continuing to do so. For example, since the delegation order, the Central Region has purchased or placed on order one minicomputer and 14 microcomputers for a total value of $134,000.

Regional Office Automated Management System

Regional offices are the primary organizations responsible for carrying out IRS policies and procedures. In 1973, IRS obtained Four-Phase equipment for the regional offices and the National Office to automate the Administrative Accounting and Budget Execution System which is the core of IRS' financial management system. The system provides for standardized financial reporting, accounts maintenance, and funds disbursement. The Four-Phase equipment is also used to support various applications within the regions which supplement financial reporting and other administrative functions. In addition to these applications, IRS decided that the Four-Phase equipment would support, as an interim measure during 1982-1983, the Centralized Service's WP&C System (see p. 109).

Although the Four-Phase equipment has been upgraded on several occasions to accommodate increasing financial management workloads, the system is becoming saturated. The 7-year system life anticipated for the system has been exceeded and maintaining the operating system has become a problem since the manufacturer will no longer provide support. With the addition of WP&C processing, the equipment is fully utilized and no new applications or major enhancements to existing applications can be undertaken. In addition, a significant portion of regional office professional staff time is spent manually capturing, analyzing, and reporting data related to the region's policies and programs.

Because the present system is inadequate to handle the current needs of the regional offices and cannot be expanded, the Regional Office Automated Management System (ROAMS) is being proposed as a replacement for the Four-Phase equipment. Office automation features will be the primary consideration as part of replacing the equipment. ROAMS is expected to have a 6-year life cycle and cost approximately $18 million. A ROAMS feasibility study was completed in early 1983, and IRS plans to award a contract by the end of 1983 with implementation scheduled to begin in 1984.

Under ROAMS, each regional office and the National Office as well would be configured as a local network with a large minicomputer for handling current and future financial applications. The large minicomputer would be linked to one or more smaller minicomputers which would handle office automation functions. A minimum of four printers for each location are planned and, initially, up to 32 terminals would be placed at each office. In this regard, the minicomputers IRS will be obtaining under the anticipated mini/micro contract may not be large enough for ROAMS since each of these minicomputers are only required to support a maximum of 10 terminals. As part of the feasibility study, a telecommunications network between district, regions, and the National Office was considered. While not a current requirement, the ROAMS design includes a telecommunications capability if justified by the workload.

IRS believes the new system will substantially improve current Four-Phase operations by providing multi-processing capabilities so that present applications should run more efficiently. In addition, it is intended to provide sufficient growth capacity for new applications.

In the office automation area, ROAMS will add such features as electronic mail, mail tracking, and networking. Currently the functional areas in the regional offices rely to a great extent on manual methods to accomplish their work. Manual methods are augmented by limited capability, stand alone, word processors. These small memory machines do not allow for integrating sources of information or communicating with each other. Implementing ROAMS would allow for this equipment to be replaced by a local network configuration. A small minicomputer could create pro forma documents, automate correspondence, search files, retrieve data, and allow users access to data stored in larger minicomputers through a data base management system.

Office Automation Study for Inspection Services

The Office Automation Study for the Inspection Service (OASIS) is a proposal to relieve technical and managerial staff from current manual and time-consuming clerical and administrative activities. The OASIS concept is based on an office automation system which would network locations and be capable of storing and transmitting data and making computations. OASIS will support both of Inspection's divisions--Internal Audit and Internal Security--throughout the country.

A December 1982 feasibility study analyzed alternatives and recommended that Inspection acquire an independent system but is presently undergoing revision in Computer Services. In the interim, Inspection is currently writing portions of the Request for Proposals and designing the nationwide data base. It is expected that the OASIS project will be presented to the ADP Policy Board in the Fall of 1984 for approval. If approved, it will be obtained on a turnkey basis and have an estimated cost of $6.8 million over a 5-year system life.

OASIS will be IRS' first nationwide interactive system. It is currently envisioned to consist of a host computer with two central processing units to provide redundancy as well as shared memory, and peripherals, and be networked to each of the seven regional Inspection offices. Each of the regional offices would have their own computer capability for text processing and local applications. Terminals, 446 in total, would be at the National office, regional offices, service centers, and most posts-of-duty for use by Inspection's 700 professional employees. To enhance security, access to the central computer would be limited to regional computers.

Returns and Information Processing System

As of April 1983, the Returns and Information Processing function under the Associate Commissioner for Data Processing was proposing to acquire an office automation system to provide the capabilities of electronic mail, calendar scheduling, draft and final report preparation, and data input and storage for management information. The system would consist of 103 printers and 412 terminals linked to 4 large minicomputers. The equipment would not be comparable to that available under the mini/micro contract which can only support a maximum of 10 terminals. The feasibility study estimates a total cost over the 5-year system life to be $12.6 million including $2.9 million for equipment and maintenance.

Commissioners' Correspondence
Tracking System

A correspondence tracking system is to be implemented throughout IRS by mid-1983 to support the Offices of the IRS Commissioner and Regional Commissioners. The project request was received and approved in July 1981 and a Request for Proposals released in December 1981. A contract was awarded in March 1982 to Wang Laboratories, Inc.

The system initially provided a terminal in the Commissioner's and Deputy Commissioner's offices, the offices of their assistants, the Administrative Office of the Commissioner, the Associate and Assistant Commissioners' offices, the Offices of the Chief Counsel and the Deputy Chief Counsel, and the

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Congressional Correspondence Unit. Initial applications include
mail tracking, word processing, and electronic mail. The
initial system became operational in June 1982, and additional
terminals are to be installed in the offices of the Regional
Commissioners by mid-1983.

CHAPTER 6

IRS' MANAGEMENT OF COMPUTER RESOURCES

Computer resources--hardware, software, and people--support
virtually every aspect of IRS' operations. An ambitious and
far-reaching program is now underway to increase this support
even more. Given this dependence on data processing throughout
the Service, it is critical that computer resources be managed
from a servicewide perspective to assure that they support all
of IRS' missions and objectives with maximum efficiency and
effectiveness.

For the past several years, we have issued numerous reports
detailing the problems that can result if top management and ADP
users are not actively involved with and do not directly par-
ticipate in the planning and controlling of computer resources.
These reports have developed a management framework of well
recognized procedures which, if properly implemented, can sub-
stantially improve the contribution made by computer resources
to an agency's operations. This chapter discusses the extent to
which these procedures have been implemented at IRS and also
describes the potential effects of recent organizational changes
within IRS and the Department of the Treasury.

ORGANIZATIONAL RESPONSIBILITY FOR
DATA PROCESSING AT IRS

The organizational placement of data processing within IRS
has undergone a number of changes since the Service began using
computers in the early 1960s. Over the past two decades, the
ADP function has become almost exclusively associated with the
processing of tax and information returns. Support provided to
non-return processing systems was minimal. A recent reorgani-
zation at IRS--although it has elevated computer operations to a
very prominent tier within the organizational structure--has
aligned computer support services even more closely with returns
processing. One result of this alignment has been the creation
of separate ADP support staffs within some functional activities
to design, develop, and maintain, the management information
systems which users have been requesting over the years.

Before 1962, the limited computer resources in IRS were the
responsibility of those functions using the systems and equip-
ment. With the advent of an IRS-wide tax processing system, IRS
created a Data Processing Division at the National Office level
to oversee the Service's growing ADP activities under an
Assistant Commissioner for Operations. Within 2 years, a sixth
Assistant Commissioner's position was created expressly

for Data Processing which made the function independent of the activities using the computers. In 1972, however, Data Processing reverted to divisional status when it was combined with returns processing, accounting, collection, and taxpayer service under the Assistant Commissioner for Accounts, Collection, and Taxpayer Service.

After several years, the Service recognized that it was becoming increasingly difficult to develop an integrated and balanced approach for meeting all of its computer resource requirements. Although the Data Processing Division had responsibility for developing, implementing, and evaluating the computer systems, programs, and hardware requirements of all of IRS, it used most of its resources to support tax and information returns processing, the major function of the Assistant Commissioner it reported to. Accordingly, in 1977 IRS created the Office of Assistant Commissioner for Data Services, making the function independent once again. Responsibility for NCC and the Data Center was also given to the new Assistant Commissioner.

Recently, ADP support services has once again become closely affiliated with returns processing. In March 1982, IRS underwent a major reorganization which created three Associate Commissioner positions, each overseeing a number of Assistant Commissioners. The reorganization divided IRS' functions and activities into three areas: Operations, Policy and Management, and Data Processing. As shown on the IRS organization chart (see app. I), the Associate Commissioner for Data Processing has responsibility for two functional components, each headed by an Assistant Commissioner: Computer Services, and Returns and Information Processing.

Under the present organizational structure, the Associate Commissioner for Data Processing is the principal advisor to the Commissioner on policy matters affecting data processing and one of four principal members of the Policy and Strategic Planning Council which develops all tax administration policy for the Service and leads the strategic planning process. The Associate Commissioner is aided by an Executive Assistant and is responsible for providing policy guidance and direction for

--processing tax returns and related documents;

--accounting for all revenues collected by the Service;

--maintaining master files of all taxpayer accounts;

--managing all tax processing computers in IRS; and

--designing, developing, testing, maintaining, or acquiring computer software used on IRS computers.

Under the Assistant Commissioner for Returns and Information Processing, the Returns Processing and Accounting Division has the responsibility for accomplishing the first two of these functions. The Division has an authorized staffing level of 235. NCC, with an authorized staffing level of 434, accomplishes the third data processing function (see p. 24). The Center now reports directly to the Assistant Commissioner for Returns and Information Processing who also oversees the Statistics of Income and Taxpayer Service Divisions.

The Assistant Commissioner for Computer Services, with a fiscal year 1983 authorized staffing level of 1,343, is responsible for accomplishing the last two of the Service's data processing functions. He has 46 staff in his office, 303 in the Hardware Division, 592 in the Software Division, and 217 in the Management Systems Division. In addition, four project offices report directly to the Assistant Commissioner with an authorized staffing level of 24 for the Distributed Input System, 57 for the Tax Processing System Redesign (see ch. 2), 45 for the Automated Collection System, and 59 for the Automated Examination System (see ch. 5).

As with all IRS National Office functions except for Inspection, the Associate Commissioner for Data Processing and the two Assistant Commissioners who report to him do not have line authority over data processing operations conducted by the regions and districts. Their primary responsibility is to develop, implement, and evaluate adherence to policies and operating procedures.

In this regard, computer operations in the regions are managed consistent with all other Service activities. Regional Commissioners have line authority over all activities within the region. Assistant Regional Commissioners are generally organized along the same functional lines as the Assistant Commissioners at the National Office. The primary function of Assistant Regional Commissioners is monitoring and coordinating operations as well as performing various workload analyses. Consequently, their staffs are relatively small. The Assistant Regional Commissioner for Taxpayer Service and Returns Processing is currently responsible for regional data processing activities. This position is being changed, however, and will be known as the Assistant Regional Commissioner for Data Processing who will oversee an ADP program manager and a Returns Processing program manager. The position of Service Center Director, who reports directly to a Regional Commissioner, will not be changed.

The 1982 reorganization has had a substantial impact on centralizing and consolidating computer operations and the overall tax processing function in IRS so that both can be treated as a single data processing entity. At the same time,

it has also resulted in a dispersal of computer operations throughout IRS. The most notable example of this is the Detroit Data Center which is now the responsibility of the Assistant Commissioner for Support and Services. Similarly, the Decision Enhancing Management Information System is being developed by the Management Information Systems Staff of the Assistant Commissioner for Human Resources. This is a sizeable effort that will have servicewide ramifications. As another example, the Office Automation Project Office reports to the Assistant Commissioner for Support and Services.

In general, it appears that IRS is continuing to allow a greater degree of flexibility for non-tax-processing systems to be designed, developed, and implemented by users. While this provides a very user-oriented approach, it may lead to systems being developed with limited utility. We identified an example of this problem in a 1982 report (app. III, GGD-82-34) addressing limitations of IRS' compliance program data. We concluded that

> "* * * IRS' management systems division is responsible for developing an overall management information system. Although the division's purpose is to ensure that the information systems operate in the most cost-effective manner, it has not taken an aggressive role in developing standards, practices, and procedures to govern the overall design of IRS' systems. Instead, the various operating divisions have continued to design systems to satisfy their own information needs and have not concerned themselves with integrating those systems with other divisions's systems so as to provide overall compliance program data.

> For example, as of May 1982, both the Appeals Division and the Office of Chief Counsel were each designing an information system to meet needs peculiar to their own operations. We were told that the management system division had had little involvement in the design of these two systems. Unless adequate consideration is given to making these and other systems and the resulting data compatible, IRS will continue to lack adequate information on the cost and revenue impact of its compliance programs."

Because Computer Services and Returns Processing are now combined under one group, it is conceivable that returns processing systems will again receive priority support and attention from Computer Services. If so, users of other automated systems would find it more and more difficult to obtain the expertise necessary to develop and maintain these

systems and might organize even more of their own staffs for this purpose. This is particularly true in the area of software development and maintenance. Consequently, the ultimate result of the 1982 reorganization at IRS might well be the complete decentralization of the ADP function within IRS.

THE ROLE OF THE DEPARTMENT OF THE TREASURY IN MANAGING IRS' COMPUTER RESOURCES

Although IRS is only 1 of 11 bureaus in the Department of the Treasury, it is by far the largest in terms of computer resources. In the past, IRS has had a great deal of autonomy in managing and acquiring computer resources. Recent legislation and our report issued last year, however, could significantly affect Treasury's oversight responsibility and result in much greater control over IRS' computer operations by the Department.

In 1973, the Department of the Treasury established an Office of Computer Science under the Assistant Secretary for Administration with responsibility which included:

--serving as a central technical resource and the Secretary's focal point for computer resource procurements and

--developing, recommending, interpreting, and evaluating adherence to and effectiveness of Departmental data processing policy.

Our report (app. III, GGD-82-9) found that the Office had little, if any, success in fulfilling its responsibilities because of a lack of staff and authority and conflicting goals and objectives. We also noted that legislation had been passed which, if properly implemented, could do much to improve Treasury's management of computer resources throughout the Department.

Several years ago, the Congress passed Public Law 96-511: The Paperwork Reduction Act of 1980. This act contained a number of provisions concerning a wide range of information-related areas, including the acquisition and use of automatic data processing, telecommunications, and other information technology. One of the act's provisions requires each Federal agency to designate a senior official to report directly to the head of the agency. Among other things, the senior official is required to

--periodically review the information management activities of the agency, including planning, budgeting, organizing, directing, training, promoting, controlling, and other managerial activities involving the collection, use, and dissemination of information;

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--systematically inventory major information systems and ensure they do not overlap each other or duplicate systems of other agencies; and

--conduct and be accountable for acquisitions of computer resources made pursuant to a delegation of procurement authority from the General Services Administration.

The Paperwork Reduction Act made it clear that the Department of the Treasury would assume a much greater role in managing all of the Department's computer resources and have final authority over all computer procurements. In implementing the act, Treasury named the Assistant Secretary for Administration to act as the Department's senior official on an interim basis until the matter was studied in greater depth.

In a February 1982 report, we concluded that the Assistant Secretary for Administration was not an appropriate choice to serve as the Department's senior official. As the report pointed out, the Assistant Secretary has a wide range of responsibilities and the potential for conflicting interests and objectives is significant. Moreover, giving the Assistant Secretary the additional responsibilities of the senior official and continuing to delegate this responsibility to the Office of Computer Science constitutes a business-as-usual approach which would only perpetuate the conditions described in the report. The report recommended that Treasury:

--Limit the senior official's duties and responsibilities to those required by the Paperwork Reduction Act to assure the official can devote sufficient time and attention to enforcing the act, assure the independence and objectivity of the official, and impress upon Department and bureau management the critical importance of the position.

--Provide the senior official with sufficient rank to demonstrate the importance of the position and to facilitate the implementation of policies and procedures that are issued by the official. At a minimum, the official should be of Assistant Secretary or equivalent rank so that it is clear to all levels of management that the official is the direct representative of the Secretary in all matters regarding information management.

--Assure that the senior official has adequate staff resources to meet the responsibilities imposed by the act.

--Have each bureau, and other offices where appropriate,
  name an individual to report directly to the bureau head
  and assist the senior official in implementing the
  requirements of the Paperwork Reduction Act within the
  bureau. These individuals should have the authority and
  staff necessary for implementing the policies and
  procedures established by the senior official.

Treasury's initial reaction to these recommendations was to
totally disagree with them. However, on January 1, 1983, the
Department created a new Assistant Secretary's position for
Electronic Systems and Information Technology. As this report
was being prepared, the duties of the new Assistant Secretary
had not been specifically defined nor could it be ascertained to
what extent our previous recommendations would be implemented.
In any event, the extent to which Treasury implements the act's
provisions and our recommendations could eventually have a
significant impact on IRS' computer operations by increasing the
role of the Department in managing computer resources in all of
its bureaus.

LONG-RANGE ADP PLANNING AT IRS

The basic objective of a long-range ADP planning system is
to recognize and define an organization's data processing
requirements sufficiently in advance to allow for the orderly
acquisition or enhancement of computer resources. The active
involvement and direct participation of ADP users and top
management in the planning process is essential in order to
consolidate and integrate both the technical and functional
aspects of data processing.

Several years ago, we evaluated IRS' management of computer
resources (app. III, GGD-79-48) and recommended, among other
things, that IRS develop an ADP planning system that would
assure senior management's involvement and participation,
allocate ADP resources equitably among using organizations,
assign priorities to requests for new applications, and foster
cost-consciousness among ADP users. Although various internal
studies at IRS had been making similar proposals since 1975, it
was not until March 1979 that IRS established the ADP
Policy/Resource Board.

The Policy/Resource Board consisted of all of IRS'
Assistant Commissioners, the Chief Counsel, the Assistant to the
Deputy Commissioner, and the Taxpayer Ombudsman. It was
responsible for

--controlling and coordinating the requests for computer
  services,

> --assuring that requests met organizational objectives
> and priorities, and
>
> --coordinating final agreements on schedules and costs
> for the fiscal year work plan.

Although we had taken the position that the Board should be
chaired by the IRS Commissioner or, at a minimum, the Deputy
Commissioner, the Service elected to have the Assistant
Commissioner for Data Services serve as Chairperson.

After several years of operation, IRS questioned the
Board's effectiveness and in September 1981, the Commissioner
convened a special task force of IRS management officials to
determine how to improve the Service's overall capability to
acquire data processing systems. The task force's April 1982
report was extremely critical of the Board and found that the
single most significant deterrent to fully automating IRS was
the lack of a comprehensive strategic ADP plan, and an effective
mechanism for overseeing the implementation, evaluation, and
updating of such a plan. This finding echoed the concerns of an
August 1981 report issued by a previous Commissioner's Special
ADP Study Group composed of outside consultants which had
reviewed the Service's data processing plans and status. The
task force on ADP acquisition made several recommendations
concerning the Board's membership and functions which are
currently being enacted or considered.

The ADP Policy/Resource Board has now been replaced by an
Automation Policy Board which is chaired by the Deputy
Commissioner and composed of the three associate commissioners,
two regional commissioners (having rotating terms) and the
Deputy Chief Counsel. The new Board is responsible for overall
ADP planning in IRS and will

> --formulate ADP policy;
>
> --establish the long-term goals;
>
> --approve the ADP plan for submission to the Policy and
> Strategic Planning Counsel;
>
> --set priorities among ADP projects and initiatives;
>
> --alter plans and priorities to meet changing needs and
> conditions; and
>
> --establish standards and procedures for acquiring,
> using, expanding, and discontinuing ADP equipment.

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All IRS components will be responsible for identifying ADP needs in a timely manner and submitting their needs to the Assistant Commissioner for Computer Services on the basis of the criteria the Board establishes. The Assistant Commissioner, in turn, is responsible for furnishing technical guidance and assistance to the components and for preparing the ADP plan on the basis of decisions and direction from the Board. The ADP plan will contain information for two categories: mainline tax processing and work processing (all other systems) and include management information, data transmission, and telecommunications needs. The ADP plan, which will become part of IRS' servicewide Strategic Planning Document, is intended to be a comprehensive one and will contain sections on background and current status in addition to plans for the short range (in the current year's budget), mid-range (2- to 5-year period), and long-range (up to a 10-year period). The plan will be updated annually and revisions, such as those resulting from the budget process, will be directed by the Board with the approval, as necessary, of the Commissioner.

IRS has not yet developed a comprehensive ADP plan. During fiscal year 1983 appropriation hearings, IRS submitted an ADP Plans and Strategy Document for both the tax processing system and automated information systems. While the planning document outlined IRS' general goals and objectives, it fell short of the expectations intended for the ADP plan. For fiscal year 1984, however, the plan should include the information necessary to support strategic planning for ADP capability.

Although the Automation Policy Board will only be involved with major ADP projects, it will give conceptual guidance to the Assistant Commissioner for Computer Services who has responsibility to approve other ADP applications, except for office automation applications. The criteria for "major projects" and "other ADP applications" is currently being defined by the Board. Procedures are in place for users to refer any unfavorable decisions regarding "other ADP applications" to the Associate Commissioner for Data Processing and/or the Automation Policy Board for resolution.

IRS' POLICIES AND PROCEDURES FOR SYSTEMS DEVELOPMENT AND PROCUREMENT

Once an effective long-range planning system has been instituted, top management and users must assure the plan is properly carried out. The individual projects that make up the plan need careful monitoring and control throughout the design and development stage to ensure that information systems are implemented in a timely manner, at a minimum cost, and are responsive to users' needs. Standardized and formalized system development procedures, detailing what is to be done, by whom,

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at various steps from project proposal through system implementation, provide management a means of reviewing progress throughout the development cycle. They also assure that all systems are developed consistently and that key activities are properly completed.

In addition to internal review groups, we have previously reported to IRS that it lacked system development procedures that incorporated these principles. Several years ago, for example, we reported (app. III, GGD-79-48) that IRS had experienced problems in obtaining new computer equipment and data processing systems because key development activities were not properly accomplished or controlled by management. The report recommended that IRS establish formalized and standardized system development procedures for Data Services and its customer organizations that

--would be structured along a logical sequence of key activities;

--specify what actions are to be accomplished, in what sequence, by whom, and with what results; and

--provide management a review mechanism with appropriate data furnished at key decision points.

IRS Internal Audit Division also issued a report evaluating servicewide controls for assuring the effective and efficient development of major data processing projects. Internal Audit reviewed the development of four major systems and concluded that IRS procedures did not assure user participation in the development process and that systems were not being developed in a logical, systematic manner. Their report also recommended that IRS adopt a formalized, planned approach of orderly independent phases with management control points in each phase.

In response to these reports, IRS established new systems development procedures for the ADP staff which incorporated the recommended approaches. These have since been revised to more involve the user in the development process. Current plans call for them to be rewritten to make them more generic and be applicable IRS-wide, rather than applying only to Computer Services.

The Commissioner's Task Force on ADP acquisition also identified significant problems in management's control of system development efforts. One of its recommendations in its April 1982 report has resulted in the recent establishment of the Automation Implementation Control Group to coordinate the

development of major projects approved by the Automation Policy Board. The Implementation Control Group is chaired by the Associate Commissioner for Data Processing and its permanent members are the Assistant Commissioners for Human Resources, Support and Services, Planning Finance and Research, Computer Services, and Returns and Information Processing, and the Director of Chief Counsel's General Legal Services Division. In addition, the heads of the major user function and project managers will serve as ad hoc members for the duration of the implementation of a project.

The primary role of the Implementation Group is to ensure that all organizations with either a primary or support role in a proposed system are involved with its development from the outset. It oversees the development of detailed implementation plans for major projects approved by the Automation Policy Board and monitors progress throughout the development cycle. During development, major decisions on projects will be made by the Group although the project manager, who has day-to-day responsibility, is assigned to the Assistant Commissioner for Computer Services for continuing supervision. The Group is also responsible for providing periodic progress reports to the Automation Policy Board and other Federal agencies including the Treasury Department, as appropriate.

Our June 1979 report also recommended that project managers be formally designated for major system development projects and for procurements of computer equipment. The Service has essentially complied with this recommendation, and current procedures now call for the Automation Policy Board to determine what projects will require a project manager and to select the individual from IRS's executive resource pool. As previously discussed, IRS currently has four system development efforts being directed by project managers: the Automated Collection System, the Automated Examination System, the Tax System Redesign Project, and the Distributed Input System. Guidance for project managers has recently been drafted and is awaiting approval by the Automation Policy Board. In general, a project office's staff is comprised of an equal number of personnel from the user activity and Computer Services. Their primary function is to work together to develop requirements that accurately reflect the users' needs and at the same time are technically feasible.

Another change affecting IRS' development of major systems is its decision to follow the procurement guidelines contained in OMB Circular A-109. These provide an organized approach to managing major systems acquisition and require each agency to

--define the system's requirements in terms of the agency's mission,

--reconcile these needs and goals with agency capabilities,

--evaluate industry's competitive efforts to develop alternative designs, and

--choose the best alternative on the basis of demonstrated performance and price commitments.

To implement and supplement A-109, the Department of the Treasury issued its own directive which, in addition to OMB criteria, established a $10-million minimum for determining if Circular A-109 would be followed. Until recently, however, IRS had consistently been exempted from A-109 requirements for its computer systems acquisitions regardless of their size. Requests for Proposals were issued with equipment-oriented rather than functional specifications. IRS first followed the A-109 guidelines with the Distributed Input System (see p. 71) but with less than full compliance. The next effort, the Automated Collection System (see p. 127), was more successful and, according to IRS, almost achieved full compliance. The Service believes the next two projects, the Automated Computerized Examination System (see p. 124) and the Tax Processing System Redesign Project (see p. 84), will totally comply with the guidelines.

IRS' recently formalized changes generally adopt most of the elements of generally recognized criteria for effective systems development. For example, IRS has established a steering committee calling for the direct involvement and active participation of the chief operating officer as well as the top management of the user activities and has created another high level group to oversee development of major systems. These steps represent a significant opportunity for IRS to substantially improve the efficiency and effectiveness of automated systems it develops.

ACCOUNTING FOR DATA PROCESSING
COSTS AT IRS

In order for IRS to have an accurate basis for informed decisionmaking in long range planning and managing systems development efforts, the total costs of developing and operating data processing services must be accounted for. Once these costs are identified, it is equally important that an accounting system be in place to measure costs by user and by specific application.

In our June 1979 report (app. III, GGD-79-48), we found that IRS needed an ADP cost accounting system in order to

--assess the full cost of requests for computer services, including the resources required to operate information systems as well as design them;

--evaluate the relative worth of current and proposed applications on the basis of their total cost and their benefit to the organization's missions and programs;

--make informed investment decisions as to whether systems should be designed and operated in-house or by outside sources;

--measure the effectiveness, and also the efficiency, of data processing services;

--determine the allocation of support needed to meet new and existing program needs; and

--foster cost consciousness among data processing users.

The report also noted that although the Service was planning to measure the costs of developing data processing systems, it had no plans to account for the costs of operating and maintaining them. We estimated that only about 5 percent of IRS' total data processing costs were developmental costs. The report's recommendation that IRS develop and implement a cost accounting system to measure total ADP costs by user and specific application was considered by IRS.

Soon after our report, OMB issued Circular A-121 in September 1980 which required all Federal agencies to account for the full cost of operating data processing facilities and to allocate all costs to users according to the service they receive. OMB required agencies to develop a plan of action for compliance with the directive within 120 days and implement such a system at the earliest possible date. As of March 1983, IRS had five major efforts under consideration to develop a servicewide cost accounting system, one aspect of which would provide for ADP cost accounting.

IRS' COMPUTER PERFORMANCE
MANAGEMENT PROGRAM

Just as any other management tool or activity, computer resources should be continuously monitored, assessed, and refined to make certain they are performing properly, at a reasonable cost, and are meeting user requirements. Computer performance management is a formalized program of measurements, evaluations, and reporting, with specific goals and objectives. It is invaluable for providing top management and users with control over scarce and valuable resources. Without it, an

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accurate assessment of current capacity and capability cannot be made and, consequently, proper planning for future requirements is impossible. A performance management program, if properly implemented, also helps ensure that new information systems are developed as efficiently and effectively as possible to reduce costs and maximize service.

Our report on IRS' management of ADP resources (app. III, GGD-79-48) found that while some efforts were made in the past to evaluate and improve the efficiency and effectiveness of the Service's computer operations, they were not systematically applied and resulted in noncomparable and unreliable measurements. Moreover, critical elements on a computer performance program, such as performance goals and periodic assessments of computer products, were not provided for. As a result, IRS could not be certain that its data processing operations were as efficient as possible or that proposals for additional ADP capacity were adequately supported.

In March 1979, IRS established a computer performance group under the Assistant Commissioner for Data Services. Because the group's specific functions and role had not been defined at the time of the June report, we recommended it should be responsible for

--setting priorities to accomplish performance management work,

--developing a systematic approach towards assessing software and computer output for efficiency and effectiveness and setting priorities for needed modifications,

--improving the comparability and accuracy of equipment utilization data,

--developing and implementing performance goals and standards,

--assuring proper justification of new equipment,

--consulting on the design of new applications to assure maximum efficiency and effectiveness, and

--specifying the duties and responsibilities of the regional ADP program managers and their role in the performance management program.

IRS agreed with the recommendation and established a servicewide computer performance management program in September 1979 that incorporated most of the features we had suggested.

As pointed out in a previous GAO report (app. III, GGD-82-9), the program has produced some significant accomplishments in terms of improving the efficiency and effectiveness of IRS' computer operations.

The performance management group has a current authorized staffing level of 17 and has recently requested an increase of 12 additional positions. Most of the group's efforts have focused on evaluating the capacity, performance, and reliability of the computer systems used for returns processing. IRS estimates that the program has saved millions of dollars in terms of better capacity sizing of new equipment and more efficient use of current resources. Although IRS wants to expand the group's efforts in areas other than the large, mainframe computers--non-returns processing systems, mini and micro computers, telecommunications, user satisfaction with information systems, etc.--not much has been done due to resource constraints. Given the tremendous growth of these areas in IRS, the potential for even larger cost savings and improved effectiveness is considerable.

In reports on other agencies, we have taken the position that a computer performance management staff should serve as a means of communication, coordination, and sometimes of negotiation between data processing management and the agency's steering committee, or, in the case of IRS, the Automation Policy Board. Consequently, the staff should be organizationally independent of the data processing group in order to ensure its objectivity. Also, it is a basic tenet of sound management principles that any evaluation group should be independent of the organization being reviewed.

IRS is still considering exactly what role the performance management group will have in long-range ADP planning and systems development. An effective computer performance management program is essential for providing accurate data for both functions. IRS' performance management group, presently in the Hardware Division under the Assistant Commissioner for Computer Services, has had some limited involvement in the planning and development of certain projects. There is, however, no formalized role for the group or requirement that they participate. The relationship of the group to the Automation Policy Board or the Automation Implementation Control Group has not been fully determined by IRS.

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IRS Organization Chart

Department of the Treasury

Assistants to the Commissioner and Deputy Commissioner*

Commissioner Deputy Commissioner

Assistant Commissioner (Inspection)
Divisions
- Internal Audit
- Internal Security

(Technical & Appeals)
(Legal Services)

National Office

Associate Commissioner (Operations)

Associate Commissioner (Policy & Management)

Associate Commissioner (Data Processing)

Associate Chief Co... (Technica...

Assistant Commissioner (Criminal Investigation)
- Office of Investigations
- Office of Intelligence
- Office of Management Services

Assistant Commissioner (Examination)
- Office of General Programs
- Office of Special Programs
- Office of Examination Systems
- Office of Examination Planning

Assistant Commissioner (Collection)
- Office of Planning and Management
- Office of Field Operations
- Office of Evaluation and Research

Assistant Commissioner (Employee Plans & Exempt Organizations)
Divisions:
- Exempt Organizations
- Employee Plans
- Actuarial

Assistant Commissioner (Support & Services)
Divisions:
- Facilities Management
- Centralized Services
- Disclosure & Security
- National Office Resources Management
- Tax Forms & Publications
- Data Center

Assistant Commissioner (Planning, Finance & Research)
Divisions:
- Fiscal Management
- Research
- Planning & Analysis

Assistant Commissioner (Human Resources)
Divisions:
- Personnel
- Training & Development
- Tax Administration Advisory Services
- Payroll/Personnel System
- Director of Practice

Assistant Commissioner (Computer Services)
Divisions:
- Hardware
- Software
- Management Systems

Assistant Commissioner (Returns and Information Processing)
Divisions:
- Returns Processing and Accounting
- National Computer Center
- Statistics of Income
- Taxpayer Service

Divisions:
- Corporation
- Employee P... and Exempt Organizatio...
- Individual T...
- Interpretatio...
- Legislation Regulations

*Public Affairs
Legislative Liaison
Taxpayer Ombudsman

Assistant to the Deputy Commissioner
Assistants to the Commissioner
Equal Opportunity

Field Offices

Regional Commissioners (7)

Regional Inspectors (7)

Assistant Regional Commissioners
- Taxpayer Service and Returns Processing
- Resources Management
- Examination
- Criminal Investigation
- Collection

Service Centers (10)
Divisions
- Compliance
- Resources Management
- Computer Services and Accounting
- Processing
- Tax Accounts

District Directors (60)
Divisions**
- Resources Management
- Examination
- Collection
- Employee Plans and Exempt Organizations
- Criminal Investigation
- Taxpayer Service

Assistant Regional Inspectors
- Internal Audit
- Internal Security

Deputy Regional Counsel
- Criminal Tax
- General Litigation
- Tax Litigation

Distric...

**Divisions do not exist in every District

Internal Revenue Service Regions, Districts and Service Centers; Chief Counsel Regional and District Offices

WESTERN REGION

WA — Seattle
Portland (OR)
Boise (ID)
MT — Helena
Reno (NV)
Ogden / Salt Lake City (UT)
SAN FRANCISCO
Fresno (CA)
Los Angeles
San Diego
Phoenix (AZ)

MIDWEST REGION

ND — Fargo
SD — Aberdeen
MN — St. Paul
WI — Milwaukee
NE — Omaha
IA — Des Moines
CHICAGO
MO — Kansas City / St. Louis / Springfield

SOUTHWEST REGION

WY — Cheyenne
CO — Denver
KS — Wichita
NM — Albuquerque
OK — Oklahoma City
AR — Little Rock
TX — Austin / Houston / DALLAS
LA — New Orleans

CENTRAL REGION

MI — Detroit
OH — Cleveland / CINCINNATI
IN — Indianapolis
KY — Louisville
WV — Parkersburg / Martinsburg

NORTH-ATLANTIC REGION

MID-ATLANTIC REGION

PA — Pittsburgh / PHILADELPHIA
VA — Richmond

SOUTHEAST REGION

TN — Nashville
NC — Greensboro
SC — Columbia
GA — ATLANTA
AL — Birmingham
MS — Jackson
FL — Jacksonville / Miami
Memphis

Anchorage (AK)
Honolulu (HI)
(Included in Western Region)

Legend

=== District Boundary

✪ National Office, Washington, D.C.
District Counsel, Washington, D.C., and
District Counsel, Foreign Operations

★ Regional Commissioner and District Director;
Regional Counsel and District Counsel

○ District Director

• District Counsel

◎ District Director and District Counsel

□ Service Center

▲ National Computer Center (Martinsburg, W. Va.)

◆ Data Center (Detroit, Mich.)

Foreign O[perations]

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LIST OF OUR REPORTS and TESTIMONIES DEALING
WITH DATA PROCESSING AT IRS

The following reports and testimonies dealing with computer and data processing operations at IRS have been issued.

1. 10/20/76 letter report from the Director, General Government Division, to the Commissioner of IRS discussing the use of computer transmitted information to improve the Statistics of Income publication schedules.

2. GGD-76-55, 11/5/76, "How the Internal Revenue Service Selects Individual Income Tax Returns For Audit." This report evaluated the effectiveness of IRS techniques for selecting tax returns for audit.

3. LCD-76-114, 11/23/76, "A Proposed Automated Tax Administration System for the Internal Revenue Service--An Evaluation of Costs and Benefits." This report reviewed the IRS cost/benefit analysis for its proposed Tax Administration System (TAS). We found that TAS was cost effective although not to the extent IRS reported.

4. LCD-76-115, 1/17/77, "Safeguarding Taxpayer Information--An Evaluation of the Proposed Computerized Tax Administration System." This was an ancillary report to the above report and found TAS feasible from a security viewpoint.

5. GGD-77-44, 7/11/77, "IRS Security Program Requires Improvements to Protect Confidentiality of Income Tax Information." This report dealt with the security of IRS' current computerized tax system as well as overall security within IRS.

6. GGD-77-73, 8/18/77, Letter Report to Congressman John Moss, recapping the previous TAS reports.

7. 2/23/78 letter report from the Assistant Director, General Government Division, to IRS' Assistant Commissioner (Planning and Research), discussing the feasibility of return preparation by taxpayer service using minicomputers.

8. GGD-78-43, 3/1/78, "An Analysis of IRS' Proposed Tax Administration System: Lessons for the Future." This report was a recap of our previous reports on TAS after IRS abandoned the proposed system in 1978.

9. GGD-78-46, 3/22/78, Letter Report to Senator Abraham Ribicoff also addressing the security aspects of TAS.

10. GGD-79-48, 6/18/79, "IRS Can Better Plan For and
Control Its ADP Resources." This report recommended
several improvements to the IRS Commissioner to
increase top management and user involvement in
assessing computer requirements and performance.

11. 7/16/79 testimony of the Director, General
Government Division, to the Subcommittee on Oversight,
House Committee on Ways and Means on IRS' use of
document matching as one of four basic compliance
tools used to identify nonfilers and underreporters
who make up the subterranean economy.

12. 9/6/79 testimony of the Associate Director,
General Government Division to the Subcommittee on
Commerce, Consumer and Monetary Affairs, House
Committee on Government Operations, providing
additional information on IRS' need for an overall
compliance strategy to include document matching, for
addressing noncompliance caused by the subterranean
economy.

13. GGD-80-33, 1/24/80, "IRS Could Make Better Use of
Computer Audit Specialists." This letter report to
the IRS Commissioner recommended increased use of
these specialists IRS-wide.

14. 10/1/80 testimony of the Director, General
Government Division to the Subcommittee on Commerce,
Consumer and Monetary Affairs, House Committee on
Government Operations, on the adequacy of IRS'
computer and noncomputer resources for the document
matching program and on areas where improvements can
be made in computer processing and overall computer
productivity.

15. FGMSD-81-4, 10/20/80, "IRS Can Expand and Improve
Computer Processing of Information Returns." This
report concluded that IRS had adequate capacity but
needed other resources to process and use all
information returns.

16. 4/13/81 testimony of the Director, General
Government Division, to the Subcommittee on Commerce,
Consumer and Monetary Affairs, House Committee on
Government Operations, on the computerized windfall
profit tax information support system. For the system
to meet the needs of all IRS users, IRS needs to
appoint a project manager to coordinate and control
the activities of the many different functional

specialists in order that the specific requirements of
the computer support system can be defined.

17.   GGD-81-84, 6/19/81, "IRS Can Reduce Costs by Not
Transcribing Cents Data From as Many Lines on Tax
Returns." This letter report to the IRS Commissioner
noted that $1.3 million in costs could be avoided by
not entering unnecessary tax data into the computer at
the service centers.

18.   GGD-82-9, 2/22/82, "The Treasury Department and
Its Bureaus Can Better Plan for and Control Computer
Resources." This report recommended that Treasury
assume greater responsibility in the oversight of data
processing operations in all of the Department's
bureaus and establish mechanisms for each of the
bureaus to better manage its computer resources.

19.   GGD-82-34, 7/23/82, "Further Research Into
Noncompliance Is Needed To Reduce Growing Tax Losses."
This report recommended a computer system be
implemented to provide revenue and other data from a
total program and agency wide prospective to aid in
determining the overall impact of IRS' compliance
programs.

20.   GGD-83-8, 10/14/82, "IRS Can Do More To Identify
Tax Returns Processing Problems and Reduce Processing
Costs." The cost of IRS' return processing system can
be reduced by changing procedures for correcting tax
returns containing errors and by adding prompting
features to its direct data entry equipment.

21.   12/16/82 testimony by the Acting Director,
Accounting and Financial Management Division, before
the Subcommittee on Oversight of Government Manage-
ment, Senate Committee on Governmental Affairs, on
federal agencies' use of IRS' income data base for
computer matching. While matching is a cost effective
management tool, sensitive and complex policy con-
siderations might affect voluntary compliance with the
Nation's tax system.

INDIVIDUAL INCOME TAX RETURNS
PROCESSED BY IRS DURING 1982

Form No.	Title	Program code	Volume
1040	Individaul Income Tax Return/OTFP 1/ - Business & Farm	43110	8,402,017
1040	Individual Income Tax Return/Non-Business	43120	32,498,524
1040	Individual Income Tax Return/FP 2/ Business & Farm	43210	4,023,345
1040	Individual Income Tax Return/FP - Non Business	43220	13,223,399
1040A	Individual Income Tax Return/OTFP	44110	31,035,465
1040A	Individual Income Tax Return/FP	44120	1,738,501
1040A	SCAT Individual Income Return/OTFP	44140	5,174,102
1040A	SCAT Individual Income Return/FP	44150	165.741
1040ES	Estimated Tax For Individuals	44200	1,310,267
1040X	Amended Individual Income Tax Return	44400	1,823,925
		Subtotal	
4868	Request For Extension To File	44700	
		Total	1(

1/OTFP (Other Than Full Pay) - Tax returns which include balances due, refunds, interest, penalties, or are delinquent.

2/FP (Full Pay) - Timely filed returns for which taxpayer pays exact amount shown on balance due line of the tax return.

BUSINESS TAX RETURNS
PROCESSED BY IRS DURING 1982

Form No.	Title	Program code	Volume
940	Employer's Annual Federal Unemployment Tax Return	11100	4,188,697
941	Employer's Quarterly Federal Tax Return	11200	18,686,480
942	Employer's Quarterly Tax Return For Household Employees	11400	2,090,757
1120(H,L,M,POL)	Corporation Income Tax Return	11500	2,579,822
1120S	Small Business Corporation Income Tax Return	12100	607,142
1120X	Amended Corporation Income Tax Return	14400	77,207
943	Employer's Annual Tax Return For Agricultural Employees	11600	417,051
720	Quarterly Federal Excise Tax Return	11800	387,370
1041	Fiduciary Income Tax Return	11900	2,034,910
1065	Partnership Return of Income	12200	1,603,093
2290	Federal Use Tax Return on Highway Motor Vehicles	12300	427,313
706 & 709	Decedent and Gift Tax Returns	12400	226,653
11(B,C)	Special Tax Return and Registry (Alcohol, Tobacco, Firearms & Wagering)	12700	379,993
		Subtotal	
*990	Returns For Exempt Organizations	13110	392,885
*990PF/5227	Return For Private Foundation	13130	56,592
*990C	Return For Exempt Cooperative	13140	28,362
		Subtotal	
7004/2758	Applications For Extension To File (Corporations, Partnerships, Fiduciaries, Exempt Organizations)	11700	
		Total	

*Involve Exempt Organizations.

EMPLOYEE PLANS TAX RETURNS
PROCESSED BY IRS DURING 1982

Form No.	Title	Program code	V
		72810	48
5500R	Registration Statement of Employee Benefit Plan		
		72830	64
5500C&K	Return/Report of Employee Benefit Plan(C) or Pension Plan for for Proprietorships and Partnerships		
		72850	1(
5500	Annual Return/Report of Employee Benefit Plan		
		72860	—
5330	Return of Initial Excise Taxes Related To Pension and Profit-Sharing Plans		
		Total	1,2

OVERVIEW OF THE AUTOMATED FEDERAL TAX SYSTEM

Refund Che

TAXPAYERS
Individuals, Corporations, etc

PAYERS OF INCOME
Businesses
Banks
Government Agencies, etc

Tax Information
and Assistance

Correspondence

Tax and
Information
Returns

Payments

Correspondence

Correspondence
Bills
Tax Notices
Tax Forms and
Instructions

Tax Returns

Payment
Information

Tax
Adjustments
Actions

REGIONAL SERVICE CENTERS (10)

★ Process Tax Returns
   Transcribe data from tax
   returns to magnetic tape
   Check tax returns for
   mathematical accuracy

★ Issue Bills and Delinquency
   Notices

★ Identify Returns for Audit

★ Process Taxpayer Corre
   spondence and Account
   Adjustments

Data to Update
Taxpayers
Accounts

Data for Collection
of Delinquent Taxes

Bills Tax Notices
Mailing Lists and
Enforcement
Information

Refund
Check Dat

NATIONAL COMPUTER CENTER

★ Maintain ADP Master Files
   of Taxpayers Accounts

★ Produce Data for Collection
   of Delinquent Taxes (including
   identification of Non Filers
   and Duplicate Filers)

★ Prepare Taxpayer Refund
   Data

★ Produce Bills and Notices
   Data

★ Identify Returns for Audit

★ Prepare Taxpayer Directory
   and Returns—Document
   Index

Business T
Deposits Da

Tax Returns
Payments
Correspondence

DISTRICT OFFICES (58)

★ Taxpayer
   Assistance

★ Enforcement
   Activities:
   Collection
   Audit
   Intelligence

Tax Returns

Enforcement
Information

Taxpayer
Directories and
Status of Accounts

Taxpayer
Directories and
Status of Accounts

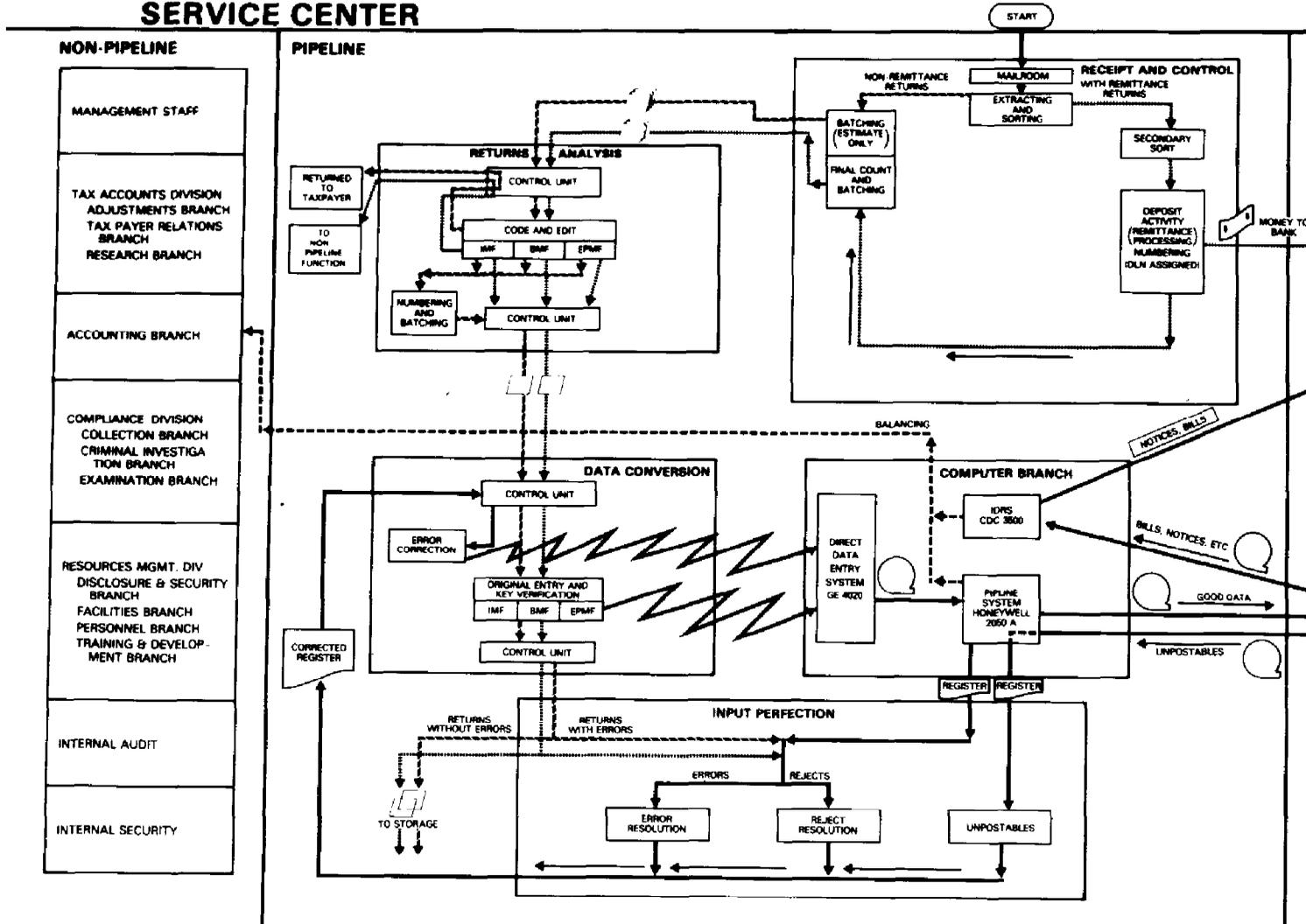Deposits by
Businesses

Payments
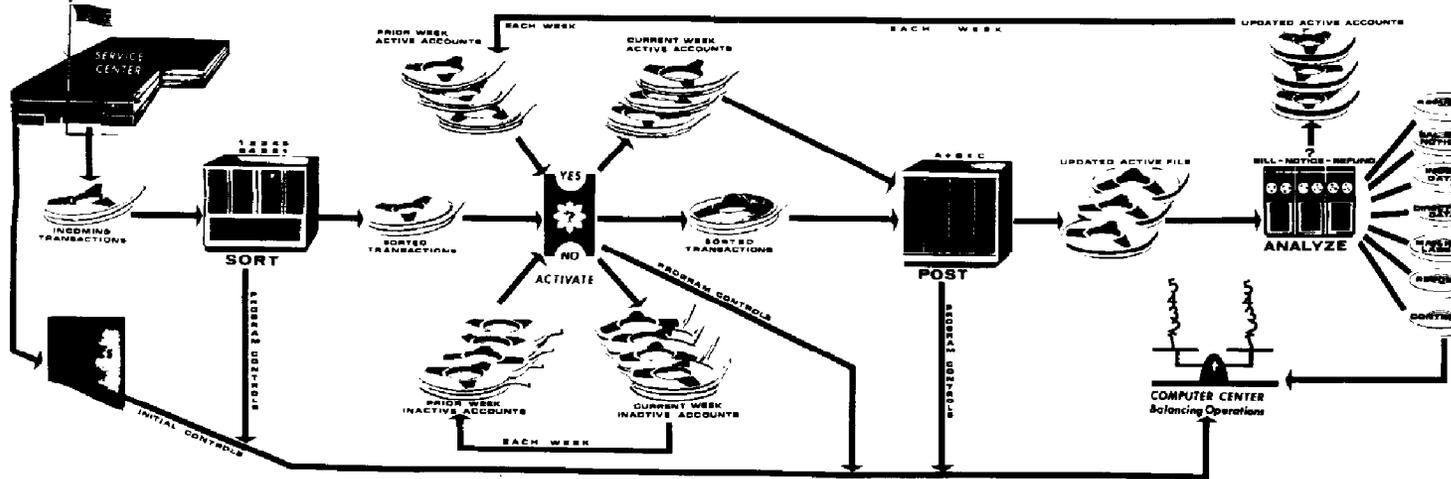
**Federal Reserve
and Local
Banks**

RETURNS PROCESSING SYSTEM

SERVICE CENTER

NATIONAL COMPUTER CENTER
WEEKLY MASTER FILE PROCESSING FLOW

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DESCRIPTION OF HONEYWELL PIPELINE SYSTEM APPLICATIONS

1. **Individual Master File (IMF) Mainline Processing** - The IMF mainline processes perform the input, input perfection, and input control of all documents and/or transactions affecting or posting to the IMF.

2. **Business Master File (BMF) Mainline and Sideline Processing** - The BMF mainline and sideline processes perform the input, input perfection, and input control of all documents and/or transactions affecting or posting to the BMF. It further allows corrected returns to be re-input to the normal processing stream for posting to the BMF.

3. **Service Center Controls System** - Service center controls provide for validity/consistency checking blocks of data and controlling their movement through the service center. It also provides a data base for General Ledger account journalization, revenue receipts reports, and various other operating reports.

4. **Employee Plans Master File (EPMF)/Individual Retirement Account (IRA) Processing** - The EPMF/IRAF processes perform the input, input perfection, and input control of all documents and/or transactions affecting or posting to this master file.

5. **Exempt Organization Master File EOMF) Processing** - The EOMF processes perform the input, input perfection, and input control of all documents and/or transactions affecting or posting to this master file.

6. **Refund Scheme Detection System** - This system analyzes refund returns for fraud potential and deletes refunds if determined to be fraudulent.

7. **Federal Tax Deposit (FTD) System** - The FTD system is a joint effort by commercial banks, Federal Reserve Banks, IRS, and the Treasury Department to receive and account for taxes withheld by employers and estimated taxes paid by corporations. FTD cards are processed in the service centers and posted to the BMF.

8. **BMF Magnetic Tape Filing Process** - This program validates, balances, and reformats employer quarterly tax returns filed on magnetic tape.

9. Remittance Processing System (RPS) - The RPS is a multifunctional process, combining equipment and procedures, which automates the deposit of remittances and the control of source documents. The RPS computerizes the recapitulation of each days deposit information while simultaneously preparing tapes to post credits to taxpayer accounts.

10. FTD Penalty Computation Processing - This process involves comparing an employers tax liability with his FTDs and issuing penalty notices where appropriate.

11. Statistics of Income Analysis (SIA) and Reporting - The SOI program provides a controlled scientific system of sampling Forms 1040, 1040A, and 1040EZ and deriving characteristics of current tax returns filed; filing patterns and trends, and projections for future periods.

12 Federal Unemployment Tax Act (FUTA) Federal/State Matching Program - This program involves a computerized matching of FUTA payments made to States with FUTA credits claimed on Form 940 filed with IRS. IRS collects any differences as well as assesses and collects late payment penalties from the taxpayer.

13. Credit Reduction Program Processing - This program involves taxing employers in States that have received FUTA loans and have not repaid them within the specified time period.

14. Information Returns Program (IRP) - Using information returns filed by income payers, IRP identifies income recipients (via matching what the recipient reported with what the payer reported) who apparently should have filed income tax returns but did not do so, and income recipients who filed tax returns but apparently did not report all taxable income.

15. Performance Costs and Schedules System - This system is used to compile and categorize statistics reflecting service center productivity and workload scheduling activity.

16. Service Center Work Plan Processing - This system produces a fiscal year work plan for each service center. The work plan indicates what work will be done and the resources required to accomplish the work.

17. Workload Scheduling System - This system provides a computerized method, with corresponding reports, for developing anticipated workloads and staff hour requirements for each operation in the service center.

18. <u>Production Control and Performance Reporting System</u> - This system provides service center management with a day-to-day means of ensuring that the production processing is meeting and will meet the required cycle or completion date as well as the staff-hour costs related to each of the various service center operations.

19. <u>Tax Shelter System</u> - The purpose of this system is to more accurately identify income of partners from partnerships by processing certain information from Form 1065 Schedule K-1 in conjunction with IMF processing.

20. <u>Control Data Analysis for Inventory Management System</u> - This project analyzes the document locator numbers in specific tape records and related cards from the Service Center Control System, and converts these numbers to Work Planning and Control codes used in the maintenance of daily inventories.

21. <u>Audit Information Management System (AIMS)</u> - Monthly reports are generated on the H2050A which reflect the activity of EOMF and EPMF cases on the AIMS data base.

22. <u>Project 719, Taxpayer Address Requests</u> - This project provides names and addresses to approved Federal and State agencies to assist them in, among other things, collecting delinquent accounts and tracing individuals who owe the Federal government money.

23. <u>Service Center Quality Review System</u> - This automated Quality Review System allows management to quickly and systematically receive quality control information necessary to analyze the work of each unit and group and to isolate and correct weak spots or trouble areas.

24. <u>Actuarial Mail File (AMF)</u> - The AMF, maintained at Andover Service Center, is a magnetic tape information file on actuaries enrolled to practice before the Department of Labor and IRS. Actuary registers and mail labels are produced from this file.

25. <u>Centralized Information Item Processing</u> -The Centralized Information Item Processing System processes tax related communications and information which allege or indicate a violation within the investigative jurisdiction of IRS.

26. <u>Taxpayer Service Resources Management Information System</u> –
     This system tracks actual productivity and staff-hour
     expenditures for all Taxpayer Service operations. As such,
     it provides an automated work planning and control system
     with which the scheduling and spending of field resources
     can be managed more effectively.

DESCRIPTION OF IDRS SYSTEM APPLICATIONS

1. <u>Research of tax accounts</u> - Realtime research capabilities
   are provided to give authorized IRS employees up-to-date
   information--a taxpayer's account, current entity data or
   specific tax modules--as they deal with issues relating to
   a taxpayer's account.

2. <u>Case Assignment and Control</u> - Cases resulting from either
   taxpayer-initiated actions or IRS-initiated actions which
   cannot be handled immediately are input to IDRS. These
   cases are assigned to an individual or to a functional area
   on the basis of the type of followup action required. The
   cases are placed in Category Codes to identify the type of
   case, the reason it is being controlled, and the functional
   area working the case.

3. <u>Document and Microfilm Request System</u> - The
   Document/Microfilm request system is used primarily by
   service center employees for research purposes. It is the
   principal means of obtaining original documents, copies, or
   specific information from returns files as well as requests
   for microfilm research.

4. <u>On-line Adjustments to Tax Accounts</u> - Using IDRS, an
   account on the IDRS data base can be adjusted immediately
   once it is verified that the account needs correcting.

5. <u>IDRS Transcript Requests</u> - The IDRS handles realtime
   requests for a printout of all or a portion of a taxpayer's
   account data from the IDRS data base. This provides
   information necessary to work a case without tying up
   terminal time to perform research.

6. <u>Computer generated correspondence processing</u> - The system
   provides for as many as 700 personalized computer-generated
   letters which can be mailed to taxpayers, government
   agencies, and other institutions in response to an inquiry.

7. <u>Unidentified Remittance File maintenance and processing</u> -
   All remittances which are received at a service center or
   field office and cannot be positively identified as to
   taxpayer and tax account are placed on the Unidentified
   Remittance File until such time they can be applied
   properly to a taxpayer's account.

8. Quality Review of IDRS Users - This system allows a quality
    reviewer to review an employee's realtime transactions as
    well as the documents which caused the employee to initiate
    the transaction. The review results in transactions either
    being accepted and forwarded to the master file for posting
    or rejected and returned to the employee for correction.

9. Balance Due Account Processing for Collection Activities -
    Returns are posted to appropriate master files and analyzed
    for money due. Information regarding taxpayers with
    balances due is placed on IDRS where as many as four
    balance due notices are sent to the taxpayer. During
    weekly processing, transactions and balance due accounts
    are analyzed to determine current status. If after the
    fourth notice is issued the account still has a balance
    due, the system will automatically generate a Taxpayer
    Delinquency Account Notice which is forwarded for
    collection action.

10. Interest Accrual Computation - IDRS will compute accrued
    interest and accrued failure to pay penalty on EPMF, IMF
    and BMF modules to the date specified. Also, the system
    will compute interest (due or allowable), estimated tax
    penalty, or failure to pay on specified amounts for
    specified periods of time.

11. Delinquent Returns Processing System - At specified
    intervals, delinquency checks are made on accounts
    contained on the different master files. If a delinquency
    exists, the master file system will generate a compliance
    record containing certain information about the taxpayer
    and the delinquent period. This information is loaded onto
    the IDRS TDI Notice File. IDRS controls and issues
    delinquency notices and eventually issues a TDI if the
    delinquent condition is not resolved.

12. Area Office Payments Program - This program allows payments
    received in field offices to be credited to an account by
    inputting the payment through IDRS. These payments append
    to a module currently accessible through IDRS and create a
    record to post to the appropriate master file.

13. Daily Transaction Register - The Daily Transaction Register
    is a listing of specified transactions that affect accounts
    which have open TDA's or TDI's or which have had open TDA's
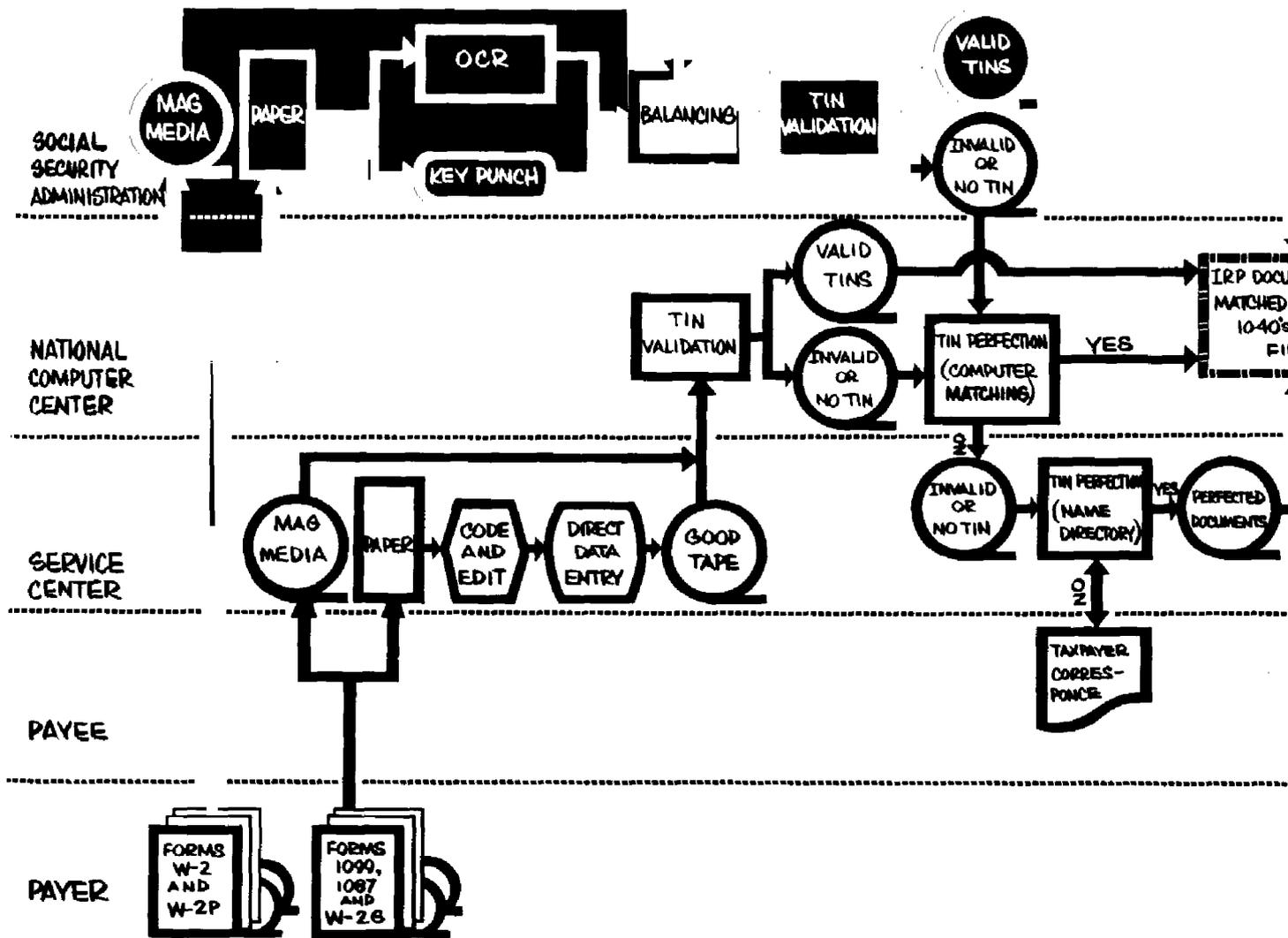   or TDI's during the current processing year.

14. <u>Transaction Security System</u> - This is a phase of the IDRS security system and is designed to allow an employee access to only that part of the IDRS system (and data) required for the employee to do his job.

15. <u>Refund Information File Maintenance</u> - This file is available primarily to assist taxpayer service representatives and other IRS personnel in answering inquiries from individual income tax filers about their refunds. It consists of information on other-than-full-pay error free returns for the latest full calendar year tax period.

16. <u>Prior Year Refund File Maintenance</u> - This file contains the same information as above except that the data is from prior years.

17. <u>Employee Plans/Exempt Organization Application Control System</u> - This system is used to monitor the inventory of applications for tax exempt status and applications for approval of employee pension plans in various district offices. The approval process is to be completed in 270 days as is required by law, and the taxpayer is to be notified as to approval or disapproval.

18. <u>Entity Research and Assignment System</u> - This system provides for the computerized assigning of Employee Identification Numbers. The system generates a notice to the taxpayer informing him of his number and it also generates Federal Tax Deposit System records.

19. <u>Computer Assisted Training for IDRS Users</u> - This system provides a training tool which can be used concurrently with production without altering production files. It provides a means of familiarizing IRS personnel with realtime processing without using "live" data.

20. <u>Terminal Usage Reporting System</u> - This system keeps track of the data entered through and retrieved by the IDRS terminals. The volume and nature of the transactions are analyzed to produce certain usage reports.

21. <u>Undelivered Refund Check Processing</u> - Refund checks returned as undeliverable are posted to the BMF and IMF as undeliverable. The affected accounts are then frozen until a correct address can be obtained. Once a corrected address is posted to the master file, the refund check will be reissued with the correct address.

22. **IDRS Generated Refunds** - The system provides the means for issuing refunds which cannot be generated from the normal master file processing and those which can be generated from the master file but not within the desired time limitations. Usually this information can be transmitted to the Regional Disbursing Center (RDC) within 24 hours.

23. **Processing Claims of non-receipt of a refund check** - Information relating to taxpayers who claim non-receipt of a refund check is input realtime and transmitted on tape to the RDC. The claim is recorded on an IDRS data base and is held there until RDC informs IRS as to the disposition of the claim.

24. **Dishonored Check Processing** - Dishonored checks are recorded on the Dishonored Check File. Once it is determined which taxpayer account the check relates to, an input made to the DCF causes the dishonored check to be recorded (debited) at the master file.

25. **Resources Management Information System** - This system tracks actual productivity and staff-hour expenditures for all Taxpayer Service operations. As such, it provides an automated work planning and control system with which the scheduling and spending of field resources can be managed more effectively. Data is input through IDRS terminals for validity and internal consistency. Data analysis and report generation is done on the H2050A.

26. **Quality Review Management Information System** - This system provides a basis by which local Taxpayer Service operations can be monitored and evaluated throughout the year. During the filing season, reports are produced weekly for branch, district and regional levels.

27. **Installment Agreements Monitoring System** - This system monitors payments from taxpayers with installment agreements and alerts collection personnel when payments are untimely.

28. **Collection Reports Processing** - The IDRS generates weekly and monthly reports for the collection function. These reports contain information regarding issuances, dispositions, inventories, and trends in regard to various collection functions.

29. <u>Audit Information Management System</u> - This system provides a realtime on-line means of requesting, updating, closing and reporting of Examination cases. The system uses the CDC-3500 for extracting reports data and the H2050A for producing the reports.

30. <u>Intelligence Case Control and Time Reporting System</u> - This system is composed of five different files which, together, provide information on all Criminal Investigation cases and projects and time records for Criminal Investigation technical personnel.

31. <u>Federal Tax Deposit Requests</u> - Requests for additional FTD cards are input to IDRS. Daily tapes containing the FTD request records are created and sent to the RDC where the actual FTD cards are produced. Beginning January 1984, IRS will produce FTD cards.

PROCESSING OF IRP DOCUMENTS AT SSA AND IR

PENDING REQUESTS FOR DATA SERVICES
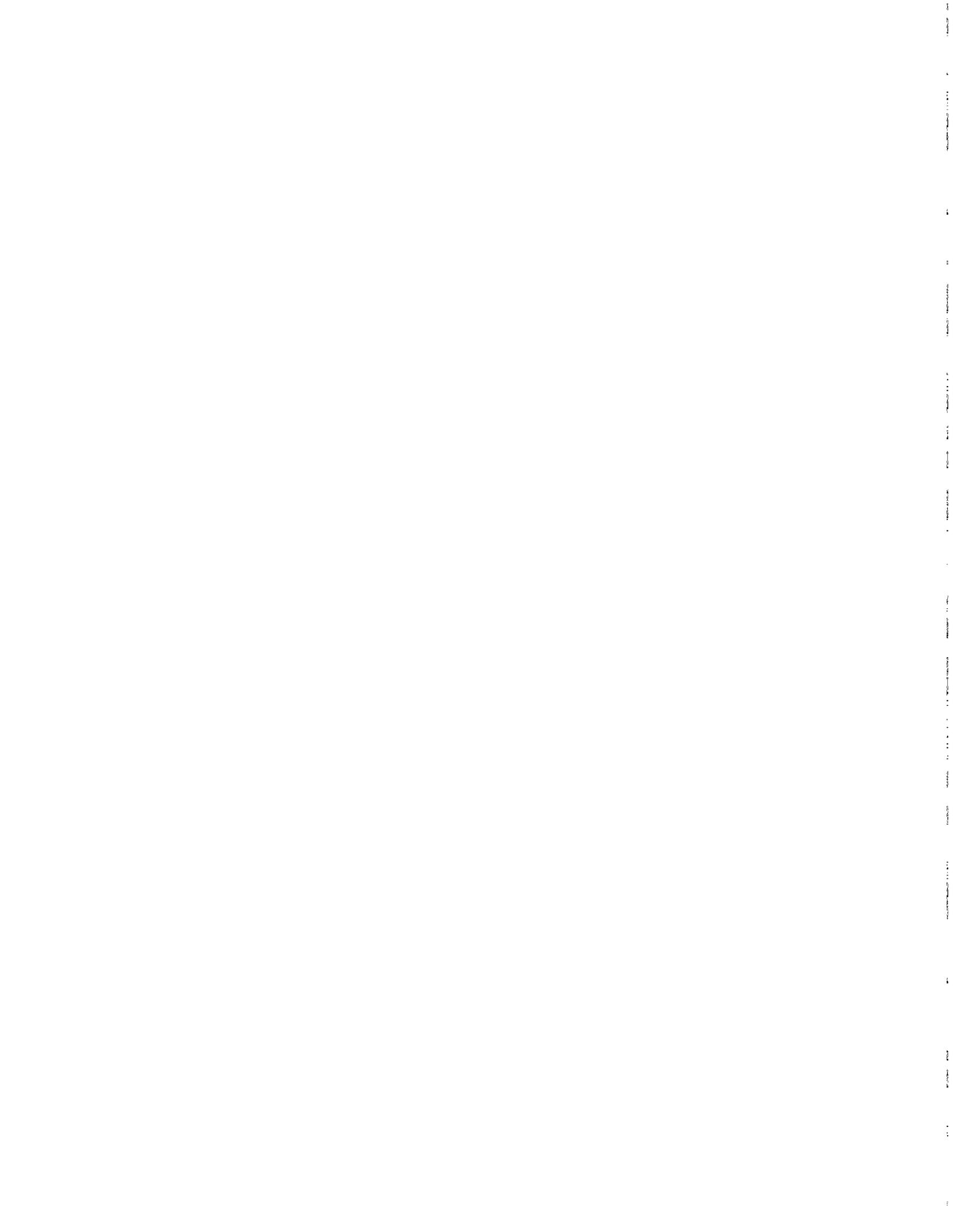### AS OF FEBRUARY 17, 1983

Organization	In/review	In/process
Appeals	2	3
Chief Counsel	2	5
Criminal Investigation	1	9
Collection	8	76
Centralized Services	0	4
Management Systems Division	3	10
Tax System Redesign Project	0	1
Detroit Data Center	6	5
Distributed Input System	1	2
Disclosure Operations,Internal	0	4
Disclosure Operations,External	8	16
Director of Practice	0	1
A/C Employee Plans/Exempt Organizations	0	1
Employee Plans	5	16
Examination	24	119
Exempt Organizations	23	32
Fiscal Management	4	15
Internal Audit	0	1
Internal Security	0	1
Multiple User Code	0	1
National Computer Center	1	1
National Office Resources Management Division	2	2
Office of International Operations	0	2
Planning and Control Staff	2	9
A/C Resources Management	0	3
Research and Operations Analysis	5	34
Returns Processing and Accounting	57	253
Hardware	2	43
Software	1	12
Statistics Division,SOI	0	18
Statistics Division,all other	3	16
Tax Forms and Publications	1	0

Organization	In/review	In/process
Taxpayer Service	0	11
Training and Development	1	1
A/C Taxpayer Service	0	1
Total	163	728

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