

GAO

Fact Sheet for the Chairman,  
Subcommittee on Commerce, Consumer,  
and Monetary Affairs, Committee on  
Government Operations, House of  
Representatives

September 1991

# TAX SYSTEMS MODERNIZATION

## Private Sector Modernization Efforts IRS May Want to Examine



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September 24, 1991

The Honorable Doug Barnard, Jr.  
Chairman, Subcommittee on Commerce,  
Consumer, and Monetary Affairs  
Committee on Government Operations  
House of Representatives

Dear Mr. Chairman:

On July 9, 1991, we testified that the pending modernization of the Internal Revenue Service's (IRS) tax systems offered opportunities for IRS to reorganize the way it does business, including how it is organized to process returns and deal with the taxpayer.<sup>1</sup> In our testimony, we alluded to the experiences of 3 private companies--out of 26 that we surveyed--in which computer modernization has prompted major organizational changes. In your August 6, 1991, letter you asked us to provide additional data showing the experiences of the 26 private companies in our survey that had implemented computer modernizations and/or undergone organizational change. We obtained this information by talking to, and in some instances visiting, officials of those companies.

Of the 26 companies, 17 implemented some type of systems modernization, while 14 implemented an organizational change. For many of the companies we surveyed, it was obvious that the need to implement technological innovations or make organizational changes was driven by the need for the companies to maintain or enhance their competitive edge in the marketplace. In many cases in which a company implemented new technology and underwent organizational change, we could not conclude from our limited data whether the implementation of modernized systems prompted the organizational change. In seven of the cases, however, we identified a link between the organizational change and the new technology. Some of these examples may be instructive to IRS as it continues to develop and implement its Tax Systems Modernization project.

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<sup>1</sup>Identifying Options for Organizational and Business Changes at IRS (GAO/T-GGD-91-54, July 9, 1991).

For example, Ford Motor Company established a regional center organizational structure for its Parts and Service Division. These regional centers were established to segment and better serve internal customers, such as small volume dealerships, and provide better customer complaint management. In the past, district operations handled both small and large volume dealerships. Customer service functions were inaccessible with this organizational structure and customer complaints soared. As a result of the organizational change, according to company officials, district operations are able to focus on the needs of large volume dealerships, and both small and large volume dealerships are reported to have shown remarkable signs of recovery in terms of customer satisfaction.

This fact sheet includes appendixes that (1) describe the methodology we used to obtain information on the 26 companies; (2) provide summary data that shows how many of these companies implemented new technologies, underwent organizational change, and underwent organizational changes that were linked to technological changes; and (3) provide details on several of the companies we identified as falling into each of these categories. We are not providing specifics on all 26 companies because in some cases the amount of information we obtained was not sufficiently detailed.

If you need additional information or have any questions, please call me on (202) 272-7904.

Sincerely yours,



Paul L. Posner  
Associate Director  
Tax Policy and Administration  
Issues

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ABBREVIATIONS

IBM	International Business Machines Corporation
IRS	Internal Revenue Service
USAA	United Services Automobile Association
3M	Minnesota Mining and Manufacturing Company

METHODOLOGY USED TO  
OBTAIN INFORMATION ON 26 COMPANIES

We reviewed information from a recent GAO study directed at compiling information on Total Quality Management efforts in 22 companies.<sup>1</sup> Many of those companies underwent organizational changes and implemented computer innovations as part of their quality management efforts.

We also reviewed the transcript from a GAO symposium in October 1989 on "Meeting the Government's Technology Challenge" for examples on the use of computer innovations in the private sector. That symposium included presentations by representatives from Covia Corporation, Banc One Corporation, The Royal Bank of Canada, and United Services Automobile Association (USAA).

We obtained a partial list of companies that the Internal Revenue Service (IRS) had visited as part of its planning for the Tax Systems Modernization project. These companies included Sears Technology Services, Southwestern Bell Telephone, Levi Strauss, American Telephone & Telegraph Company, USAA, Chase Manhattan Bank, and Westinghouse.

From the previous GAO efforts mentioned above and the list we obtained from IRS, we selected eight companies to contact by phone or visit in order to obtain more specific information on their experiences with technological innovation and organizational change. Those companies were Minnesota Mining and Manufacturing Company (3M); AETNA; Citicorp Credit Services, Inc.; Ford Motor Company; J.C. Penney Company, Inc.; Mutual Benefit Life Insurance; The Royal Bank of Canada; and USAA. We selected these companies because they (1) implemented new technologies and/or underwent changes in their organizational structure, (2) were in a service-oriented line of business, and/or (3) were similar to IRS in size or organizational structure.

We did not independently verify any of the information obtained from the companies.

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<sup>1</sup>Management Practices: U.S. Companies Improve Performance Through Quality Efforts (GAO/NSIAD-91-190, May 2, 1991).

SURVEY SUMMARYType of Changes Implemented

<u>Company</u>	<u>Technological</u>	<u>Organizational</u>	<u>Organizational linked to technological</u>
3M	x		
AETNA		x	
American Airlines	x		
Banc One Corp.	x		
Citicorp Credit Services, Inc. <sup>a</sup>	x	x	x
Control Data - Seagate Small Disk Div.		x	
Covia Corp.	x		
Digital Equipment Corp. <sup>a</sup>	x		x
Federal Express Corp.	x		
Ford Motor Co.			x
General Motors - Allison Transmission			x
General Motors - Cadillac Motor Div.		x	
Globe Metallurgical Inc.	x		
Goodyear Tire and Rubber Co.	x	x	
GTE Telephone Operations	x	x	
IBM (Endicott)	x	x	
J.C. Penney Co., Inc. <sup>a</sup>	x	x	x
Milliken and Co.		x	
Motorola Corp.		x	
Mutual Life Insurance Co.			x
Paul Revere Insurance Group		x	
The Royal Bank of Canada <sup>a</sup>	x		<u>x</u>
USAA	x	x	
Westinghouse Commercial Nuclear Fuel Div.	x		
Westinghouse Furniture Systems	x	x	
Xerox Corp.	<u>x</u>	<u>x</u>	
Total	<u>17</u>	<u>14</u>	<u>7</u>

Note: If our information was sufficient to show a link between both types of changes, we put an "x" in the last column. If we could not see a link, we put an "x" in each of the first two columns.

<sup>a</sup>These companies have an "x" in the last column and an "x" in one or both of the other columns because our data not only indicated a link between some of the organizational and technological changes at those companies but also indicated that there were other changes at the companies that were not linked.

EXAMPLES OF COMPANIES THAT IMPLEMENTED  
TECHNOLOGICAL CHANGE

- Several companies implemented new technology to improve customer access to service. For example, 3M and Westinghouse Furniture Systems installed their equipment at customers' sites to enable customers to directly order supplies. International Business Machines Corporation (IBM) has a similar setup between its sites and its suppliers. IBM also implemented a system that allows its customers easy access to IBM staff through their computers. This system centralized IBM's problem-solving expertise and improved its responses to customers problems.

Similarly, Goodyear Tire and Rubber Company established a toll-free telephone number through which employees provide customer service. Westinghouse Commercial Nuclear Fuel gave customers direct access to schedule and manufacturing status information from one of the plants using personal computer based networks. American Airlines teamed with American Express to expand its computerized reservation system to a multi-access system. Travel agents now have access to rates and schedules for airlines, trains, and cruises and information on the availability of hotel rooms and rental cars all on one system.

- Citicorp Credit Services, Inc. implemented several technological innovations to enhance its business operations. For example, it uses image processing for processing checks and sales drafts, provides on-line access to information on customers' accounts, uses computer simulations to train telephone representatives, and uses an automated computer voice telephone system to provide customers with information on their credit card balances.

At the time of our work, Citicorp was developing an advanced workstation for its telephone operators. Currently, operators work on computers that have over 50 computer screens and several subscreens. As a result, operators are very dependent on paper manuals to understand everything on these screens. With the advanced workstations, the computers will be more user friendly, and information from the manuals will be on line and thus more readily available. Through use of the advanced workstations, Citicorp expects to improve the accuracy and speed of its responses to customer inquiries.



According to a Citicorp official, use of new technology also helps the company provide better service to merchants. For example, Citicorp provides merchants with information on charges in dispute with credit cardholders. Specifically, it provides merchants with the number of bills being disputed, the amounts of the charges being disputed, and the ages of the charges.

- Federal Express has enhanced its customer service by monitoring packages closely while they are enroute to their delivery point. It puts bar codes on all delivery packages and uses hand-held computers to track the packages from pick-up to delivery. This system also enables Federal Express to quickly identify and correct problems in its delivery system.
- J.C. Penney Co., Inc. implemented several new technological innovations over the last decade. For example, in 1981 it implemented new technology to more effectively and efficiently bill its customers. Until 1981, Penney sent customers hard copies of each of their credit transactions during the billing cycle and a summary card of all the transactions for that period. This billing method was labor intensive because the bills were manually assembled and required a significant amount of postage to cover their weight. Penney implemented technology in 1981 that enabled it to print monthly statements of the customers' accounts that list each individual transaction. This method is less expensive and provides lighter weight statements than the old method. It also provides Penney with the opportunity to use the lighter weight statements as vehicles for sending customers information on their credit card accounts or promoting catalog sales or other promotional items. Other innovations Penney implemented included an on-line system for information on customer accounts and a toll-free telephone number for catalog sales.

Penney officials cited the following examples of benefits achieved by implementing new technologies: (1) better customer service because telephone representatives have instant and up-to-date access to customer account information and inventory levels for catalog sales, (2) improved productivity and accuracy in the credit service centers and telemarketing centers because information is keyed directly into the system, (3) reduced number of people needed to handle each credit transaction and improved accuracy in processing transactions, and (4) improved customer assistance from telemarketing operators with the use of a toll-free telephone

number and call monitoring to ensure no one telemarketing center gets overloaded with calls.

- The Royal Bank of Canada implemented new technology that provided several unforeseen benefits, according to Bank officials. For example, with the use of an on-line system, the company is able to share information dynamically across Bank borders and functions. Also, it uses information from its management information system to streamline the delivery and use of forms and publications. It reengineered all of the forms to be more user friendly.

The Bank's use of technology also enabled it to reengineer some job descriptions. For example, the Bank expanded the duties of clerical employees and those with limited data entry skills with the implementation of a new automated system. The Bank trained some employees for these new jobs and trained others for jobs in new fields. Professional staff jobs in certain operations also evolved into positions that required them to develop more job expertise.

- USAA is implementing the largest image processing system in the world. Images of members' accounts and policies are instantly available to customer representatives on computer terminals at their desks. The use of imaging allows multiple users to simultaneously access information on their members' accounts. By the end of 1989, USAA processed 95 percent of policy service mail by using this imaging system, with consequent improvements in speed and efficiency. Outgoing as well as incoming mail is imaged. USAA reduced the number of staff handling mail by 120 people with the use of imaging.
- Westinghouse Furniture Systems places heavy emphasis on rapid electronic mail communications and computerized data analysis and reporting systems. It developed a fully integrated management information system to manage the financial and operational aspects of the company. It uses a large mainframe database, which is supplemented by a large network of computers and other equipment, to capture and maintain data associated with the business. The system gives each function ready access to data. The company uses a unique information handling approach that quickly communicates field conditions to personnel in its factory through the use of hand-held video cameras by field staff during site visits.
- Xerox Corporation uses redundant systems to ensure the availability of customer support processes in the field. For

example, the information system serving the 22 Customer Service Support Centers maintains complete service records on the entire machine and customer populations in their areas. This database is set up so that if one of the 22 centers goes down, the nearest operational center can take over the work load without the customer ever knowing there was a problem.

EXAMPLES OF COMPANIES THAT  
UNDERWENT ORGANIZATIONAL CHANGE

Several companies that we surveyed recently centralized or consolidated functions, divisions, or departments to, among other things, gain economies of scale, become more competitive, or provide better customer service. The following are examples:

- AETNA is reducing the number of its divisions and centralizing its functions. It has already reorganized its information systems department to better serve internal customers.
- Citicorp Credit Services, Inc. merged its training and quality offices while implementing quality management principles.
- Paul Revere Insurance Group combined its billing, collections, and correspondence departments into one department.
- Westinghouse Furniture Systems flattened its organization. It also created a new executive position (Vice President of Customer Assurance), which served to combine all functions that deal directly with customer order requirements into one executive-level team. The company also developed a Response Center to help improve project timeliness. Before developing the Response Center, the company found that dealers and customers often forgot to order certain standard items, which delayed project completions. Today, the Response Center stocks about 400 of the most often omitted items and has a toll-free number that is accessible 24 hours a day, 7 days a week. When customers call, they speak to their representative rather than someone assigned from a pool. Company officials felt that this arrangement established continuity and made the company more effective in dealing with customer needs.

Several companies in our survey decentralized parts of their organization. For example, as a result of growing customer dissatisfaction with repair service, Control Data's Seagate Small Disk Division established customer service centers in 1986 to focus on post sales support. Several improvements resulted from this move, including improved service quality and performance of repaired products and reduced warranty costs. USAA also decentralized its operations with the establishment of four regional offices in the 1980s. The regional offices enabled USAA to provide services closer to its customers.

Several companies in our survey made organizational changes to reduce their hierarchial structures or to move to a less functional type of organization. For example, Goodyear Tire and Rubber Company reorganized in 1988 to break down its strong functional orientation. This change gave organizational units more authority. In addition, Milliken and Company achieved a flat management structure through quality management improvements. Employees work in primarily self-managed teams and exercise considerable authority and autonomy.

EXAMPLES OF COMPANIES WHERE TECHNOLOGICAL INNOVATION  
CAN BE LINKED TO ORGANIZATIONAL CHANGE

- Citicorp Credit Services, Inc. implemented new technology that enabled it to consolidate work done by two separate departments. First, it consolidated the functions that prepared the statements for cardholders and merchants into one function. Second, at the time of our work, it was in the process of similarly consolidating the functions that are responsible for resolving credit disputes. Under the previous structure, credit disputes between cardholders and merchants were resolved through the involvement of separate staffs responsible for each side of the dispute. A large amount of paper flowed back and forth between these staffs in trying to resolve the dispute, and the process was time-consuming. To improve this system, new technology was being implemented that would provide on-line information from the cardholders and merchants involved in the disputes, and staff in one department rather than two would be responsible for resolving the issues. Because the information needed to resolve disputes will be on-line and fewer people will be involved in the process, the company expects to decrease the amount of time it takes to resolve disputes.

Company officials said that the use of new technology at Citicorp positively affects the alignment of jobs on the merchant side of the organization. For example, under the new credit dispute system, staff handling the dispute cases will have better control over the cases and more time to investigate them because less time will be spent gathering documentation. Staffing for this function will be reduced by 25 percent with the new system.

While the use of technology at Citicorp resulted in downsizing some departments, it increased the size of others. Company officials expressed the belief that organizational changes evolve with the implementation of technology and are easier to visualize as daily crises are eliminated by the new technology.

- Ford Motor Company recently established a regional service center organizational structure for its Parts and Service Division's national operations. Four regional service centers were added to the existing 28 district offices. This decision was not based on new technology. Rather, new technology was applied to enhance the efficiency and productivity of the new organizational structure.

Regional service centers were established to segment and better serve an internal company client--small volume dealerships (and their customers)--and provide better customer complaint management. District operations remained to focus exclusively on the needs of large volume dealerships (and their customers). In the past, district operations served both clients. Under this old organizational structure, customer service functions at dealerships and district offices were largely inaccessible, customer complaints soared, and complaint management was inconsistent throughout the country. As a result of the reorganization, according to company officials, both small and large volume dealerships have shown remarkable signs of recovery in terms of customer satisfaction.

Technology also assisted in this recovery by enabling Ford to consolidate in one central location the management control and support systems used nationwide in its telephone and correspondence customer assistance functions. This was all consolidated into the Customer Assistance Center in Detroit, Michigan. Before the consolidation, each of Ford's 28 district offices provided this assistance independently. Under the old system, customer handling was inconsistent, and product owner satisfaction and loyalty were low. As a result of the consolidation, according to Ford officials, Ford has done a much better job of answering customers' first calls to the Center. They said that the rate of first calls being answered went from 54 percent to 90 percent after the consolidation.

Ford Motor Company also reduced the number of parts distribution centers from 20 in 1980 to 9 in 1988 with the implementation of advanced storage and retrieval equipment while maintaining customer service at or above the level before consolidation.

- The use of new technology enabled J.C. Penney Co., Inc. to make several organizational changes. With technological advances making computer systems better and more powerful, Penney no longer needed credit processing operations in as many locations. Until the early 1980s, credit processing operations were combined with the credit service function in 11 regional offices. In the early 1980s, these functions were separated into 3 credit processing centers and 11 credit service centers (13 service centers in 1991). According to company officials, as a result of the consolidation, Penney

(1) achieved economies of scale by reducing the amount of equipment and space needed, (2) reduced staffing by about 50 percent, (3) improved productivity by increasing the extent to which it received and processed credit payments in the same day by more than 38 percent, and (4) broadened employees' expertise and skills.

As mentioned above, when Penney consolidated its credit processing operations, it also converted its regional offices into credit service centers. Today, Penney is planning to re-evaluate the number of credit service centers it is operating (which now total 13) because technological advances and the current long distance telephone rate structure make it less important now than in the past to have as many centers as it has and to have them near the customers.

The new account processing function recently was transferred from within the 13 credit service centers into 2 of the 3 credit processing centers and transformed from a paper intensive operation to an automated one. To automate this function, the company is implementing an imaging system between its stores and credit processing centers to help process new account applications more efficiently. By consolidating this function into 2 locations, the company is able to more efficiently use the human resources devoted to this work.

In the early 1980s, Penney centralized its catalog sales. Up until then, staff in each of its 1,700 stores took catalog orders by phone. With the use of improved telecommunications and an on-line system, this function was centralized into 16 telemarketing centers that handle about 80 million calls per year.

- Through the implementation of a personalized computer system, Mutual Life Insurance Company was able to change work processes in certain areas. Processes that were previously done manually in assembly line fashion now can be done by one person with the computerized system.

This system, first implemented in the policy issuance area, enabled Mutual to reorganize the process of issuing an insurance policy. The system is designed to do much of the administrative work that is necessary to issue an insurance policy, such as determining whether more information from the potential policyholder is needed before issuing a policy and



if so, issuing electronic correspondence to obtain the information.

Before implementing the personalized computer system, about 20 people were involved in issuing an insurance policy. With this system in place, less people are needed to issue a policy because the computer does much of the work. According to the company, about 20 percent of all policies are now issued almost without any human intervention, and policies are sometimes issued in as little as 20 minutes.

- The Royal Bank of Canada restructured its organization and applied new technologies in processing, storing, and transmitting data to achieve productivity gains. It changed its organizational structure and reengineered its work processes following installation of a comprehensive, on-line computer system that permits direct access to all data on retail customer accounts and provides a comprehensive customer profile database. The organizational changes included moving from 6 large batch processing systems to 3 online distributed databases and consolidating 30 operations centers into 10. The consolidation of the operations centers centralized all manual, paper-based processing, and storage functions.

MAJOR CONTRIBUTORS TO THIS REPORT

General Government Division, Washington, D.C.

David Attianese, Assistant Director,  
Tax Policy and Administration Issues  
Ellen Wineholt, Evaluator-in-Charge  
William Bley, Evaluator  
Cathy Koch, Evaluator

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