
Office of Inspector General

Audit Report

Implementation of Cost Accounting System

Federal Aviation Administration

Report Number FE-1998-186

Date Issued: August 10, 1998





Memorandum

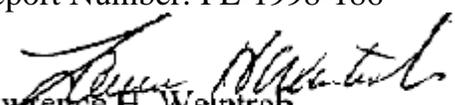
U.S. Department of
Transportation

Office of the Secretary
of Transportation

Office of Inspector General

Subject: **ACTION:** Report on Implementation of
Cost Accounting System, FAA
Report Number: FE-1998-186

Date: August 10, 1998

From: 
Lawrence H. Weinrob
Assistant Inspector General for Auditing

Reply To
Attn Of:

To: Federal Aviation Administrator

This is our initial report on the Federal Aviation Administration's (FAA) efforts to implement a cost accounting system. Cost accounting provides management with cost information which is an essential component of a well-managed, cost-effective organization. A cost accounting system can be a combination of manual and automated processes, and is a continuous and systematic process that captures and allocates costs to a variety of objects¹ designed by management, and reports on such cost.

Our objective was to determine whether the FAA cost accounting system is designed to capture and allocate all costs, and tested to provide reliable information for performance measurement and establishment of user fees. This audit focused on whether the cost accounting system was designed to capture all cost, and whether the implementation schedule was realistic. The Congressionally mandated National Civil Aviation Review Commission called for strong financial controls in FAA, including a reliable cost accounting system by October 1998.

RESULTS-IN-BRIEF

FAA has made substantial progress in developing its cost accounting system, but more needs to be done. We identified four system design issues, potentially involving billions of dollars of transactions, FAA needs to address before its cost accounting system can accurately account for FAA's full cost of operations. FAA's cost accounting system is designed to capture cost, but FAA has yet to establish a systematic method to identify and reflect (1) the cost of accounting adjustments,²

¹ A cost "object" can be an organizational division, a function, task, product, service or customer.

² An accounting adjustment is a correction to a financial general ledger account.

(2) cost for all development projects, (3) cost incurred by other agencies for air traffic services, and (4) the correct labor cost charged to appropriate projects. Equally important, FAA had not yet decided how to allocate its costs. For example, decisions had not been made on how to allocate facilities and equipment cost to operating facilities throughout FAA. Until allocation decisions are made, FAA's cost accounting system will be incomplete. FAA plans to make these decisions by October 1998.

Implementation of FAA's cost accounting system is not on schedule. The original implementation schedule called for full implementation of the FAA cost accounting system by October 1, 1998. We found the schedule was overly aggressive, contained conflicting tasks, and omitted responsibilities and resource needs. During our audit, we brought these scheduling issues to FAA's attention. FAA revised its implementation goals into two stages; an initial operational cost accounting system by December 31, 1998, and a fully operational system by March 31, 1999. This timeframe is very ambitious and a lot of work is needed to meet this goal.

The FAA cost accounting system, as currently designed, will use financial data obtained from the Departmental Accounting and Financial Information System (DAFIS). FAA has made noteworthy accomplishments in improving its financial controls in recent years. However, we could not express an opinion on the fair presentation of FAA's Fiscal Year (FY) 1997 financial statements because of significant financial control deficiencies, such as FAA could not substantiate its reported amount of \$12.4 billion for property and inventory.³ Until FAA resolves its underlying financial control deficiencies, its new cost accounting system, even if flawlessly designed, installed, and tested, will not produce accurate, and defensible, cost data.

BACKGROUND

Reliable cost information of Federal programs and activities is crucial for effective management and measurement of government operations. Cost information is used by Congress and Federal executives in making decisions about (1) allocating Federal resources, (2) authorizing and modifying programs, (3) evaluating program performance, and (4) improving the economy and efficiency of operations. In addition to these information needs, FAA plans to use its cost accounting system to develop user fees for the various services FAA provides. In its FY 1999 budget guidance to the Department, the Office of Management and Budget (OMB) suggested that, beginning in the year 2000, cost-based user fees will finance most FAA programs.

The Statement of Federal Financial Accounting Standards Number 4, "Managerial Cost Accounting Concepts and Standards for the Federal Government," (cost accounting standard) provides managerial cost accounting concepts and standards

³ OIG Report Number FE-1998-098, Fiscal Year 1997 Financial Statements, Federal Aviation Administration, March 25, 1998.

aimed at providing reliable and timely information on the full cost of federal programs, activities, and outputs. The cost accounting standard states:

The full cost of an output produced by a responsibility segment is the sum of (1) the costs of resources consumed by the segment that directly or indirectly contribute to the output, and (2) the costs of identifiable supporting services by other responsibility segments within the reporting entity, and by other reporting entities.

The Federal Aviation Reauthorization Act of 1996 (Act) requires FAA to develop a cost accounting system. The Act also established the National Civil Aviation Review Commission to evaluate aviation funding and safety, and to make recommendations to Congress that included how FAA could reduce cost, raise additional revenue for operations, and improve productivity through automation and other technology. The Commission recommended that FAA's sources of revenue more directly relate to cost.

When fully implemented, FAA's cost accounting system is intended to permit FAA to benchmark and monitor air traffic control system performance, establish cost accountability for FAA operations, and provide a basis to support calculation of user fees. The FAA cost accounting system will collect financial data from departmental financial accounting and payroll systems for cost measurement, and program performance data from FAA's operational systems for program measurement to serve as a basis for the allocation of cost.

The Act also authorizes FAA to recover up to \$100 million in annual "overflight fees." These fees are imposed on flights that do not take off from, or land in, the United States, but fly over the United States. The Act requires overflight fees to be "directly" related to the agency's cost of providing services. On January 30, 1998, a Federal court ruled that (1) FAA's methodology for calculating overflight fees, which was developed independently from the cost accounting system, was not cost based; and (2) FAA's allocation of fixed and common costs, using a value-oriented methodology, violated the Act. The Federal court voided FAA's overflight fee schedule in its entirety.

According to the court, FAA's methodology distributed fixed costs among classes of users, based not on actual use of the system, but on the willingness to pay. The court concluded (1) there may be methods to reasonably determine an appropriate fraction of the FAA's fixed costs to assign to each overflight, and (2) if FAA does not have information to precisely determine the burdens imposed by individual flights, it may proceed based on the best data available.

As a result of this ruling, FAA notified foreign air carriers that it had ceased billing for these fees, and was accepting refund requests for overflight fees. In April 1998, FAA stated that, due to this court ruling, the initial goal to implement a fully functional cost accounting system agencywide by the beginning of FY 1999 was not realistic. FAA

refocused its attention on completing the Air Traffic Services' requirements of its cost accounting system, so overflight fees could be based on direct cost, and FAA expects that to be completed by mid-August 1998.

SCOPE AND METHODOLOGY

FAA's first phase of development efforts for its cost accounting system is to identify system requirements for capturing full cost of operations. The second phase is to program and test identified requirements, including cost allocation, and to deploy the system. For our review of the first phase, we interviewed appropriate project development officials associated with FAA's Cost Accounting Division, lines-of-business, and its consultant. We examined relevant design and implementation documents for the cost accounting system, federal accounting and system development standards, and legislative actions affecting FAA. Our work was performed between October 1997 and June 1998, at FAA Headquarters in Washington, D.C. The audit was conducted in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States.

FINDINGS AND RECOMMENDATIONS

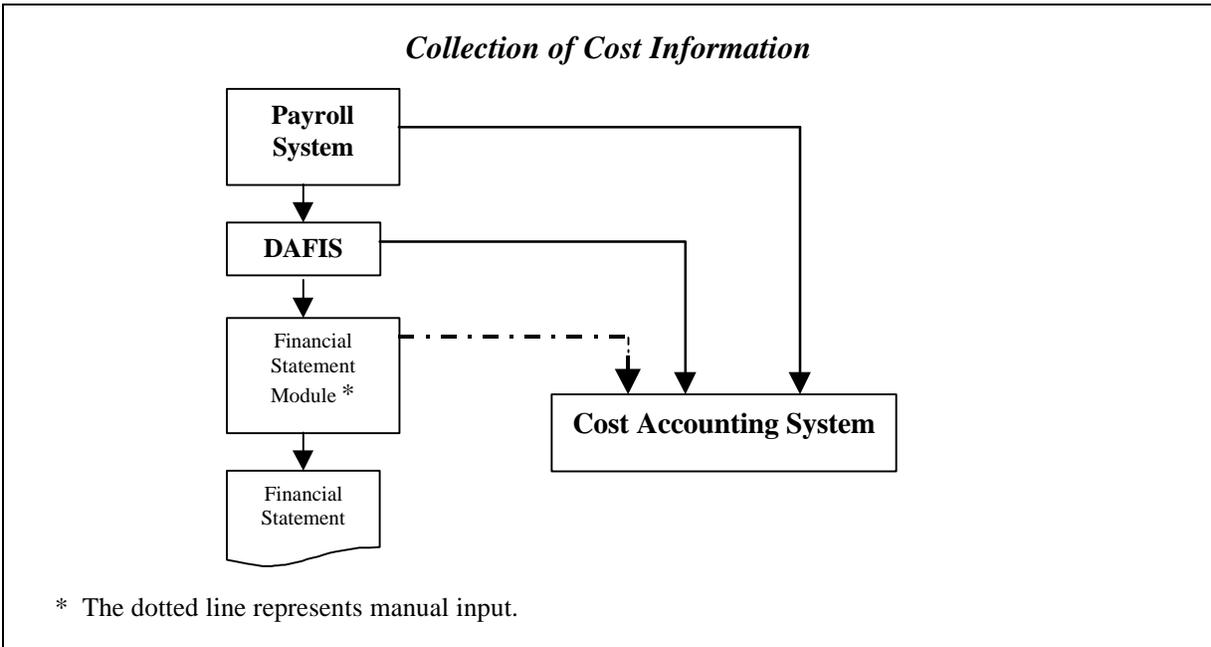
Analyses of System Design Issues for Capturing Full Cost

FAA's Cost Accounting Division acquired a commercial system—PeopleSoft Projects—as a basis to prototype and design FAA's cost accounting system. Federal Information Processing Standards refer to prototyping as designing a system through trial and error, with a working model of the system. Therefore, system owners can better determine requirements for projects.

FAA estimates its cost accounting system will cost about \$12.3 million to develop and implement. From FY 1996 through FY 1998, FAA estimates system costs will total about \$8 million, of which \$5 million will be paid to the consultant FAA retained to support development of its cost accounting system requirements, performance measurements, and long-term cost accounting needs. To date, FAA and its consultant have been collecting FAA's lines-of-business' requirements for cost accounting and performance measurement, planning to meet with industry for best practices, designing and developing automated financial collection processes, testing initial extraction of financial data from DAFIS to PeopleSoft Projects, and issuing prototype reports to one line-of-business.

Regarding FAA's accounting needs, the National Civil Aviation Review Commission recommended FAA develop strong financial controls, manage its resources in a businesslike manner, and allocate its cost fairly to support a cost-based user fee system. Like the business world, FAA, for the past 6 years, has been compiling financial statements to present its operational results and financial condition. As

depicted in the chart on the following page, the financial statements and the FAA cost accounting system share the same sources of information.



As mentioned earlier, during our audits of FAA’s financial statements over the last 6 years, we identified significant financial control deficiencies, many relating to DAFIS. Until FAA, working with the Department of Transportation’s Office of the Assistant Secretary for Budget and Programs/Chief Financial Officer, resolves the financial control deficiencies associated with DAFIS, FAA’s cost accounting system will not produce accurate, and defensible, cost data.

We also identified the need for FAA to address the following design issues, potentially involving billions of dollars of transactions, so its cost accounting system can accurately account for FAA’s full cost of operations:

1. Accounting Adjustments. For its FY 1997 financial statements, FAA had to make 532 accounting adjustments, involving hundreds of millions of dollars, to bring financial records into compliance with authorized accounting standards. These adjustments were made to record late transactions, recognize revenues and expenses in the proper periods, and correct accounting errors identified after yearend. To illustrate the significance of only 2 of the 532 adjustments, FAA increased its liabilities by \$173 million and \$376 million as a result of recognizing additional costs associated with workers’ compensation benefits and environmental cleanup, respectively.

However, these adjustments were recorded in a stand-alone system outside of DAFIS—i.e., the Financial Statement Module. Since there is no automated interface between the FAA cost accounting system, as currently designed, and the

Financial Statement Module, FAA must develop special procedures, to include manual adjustments, to capture these transactions in its cost accounting system.

Further, FAA makes these accounting adjustments at the summary total level. Unless FAA can identify these adjustments to individual projects, the cost accounting system would have to arbitrarily assign these costs into overhead expenses, as opposed to direct project cost. Because of the significance of these adjustments, ultimate cost allocations, and decisions based on those allocations, would be distorted. FAA's Cost Accounting Division representatives informed us they plan to work with FAA's Financial Policy, Systems, and Reports Division to identify these transactions and use manual adjustments, as necessary, to record accounting adjustment transactions in the cost accounting system.

2. Project Development Cost. FAA has made large investments in development projects. For FY 1997, FAA reported over \$4 billion in property development projects and \$639 million in software development projects.⁴ In order to monitor project efficiency, evaluate performance, and justify project progress,⁵ FAA managers require complete accumulation of development cost. However, the FAA cost accounting system was not designed to capture these costs. After we brought this design issue to its attention, FAA agreed to collect the cost for property development projects. Subsequent to our field work, FAA advised they implemented a design change for the cost accounting system to be able to collect an additional 2 years of historical cost for these projects.

Complete recording of project development cost is critical for evaluating project performance, but also is needed for calculating future operational cost. Federal accounting standards require all cost associated with development projects be accumulated during the development stage. When the development project is commissioned for use, the accumulated cost should be used as a base for calculating operational cost—i.e., depreciation (for property) and amortization (for software) expense. Unless the FAA cost accounting system accumulates complete project development cost, FAA's future operational cost will be understated.

3. Cost Incurred by Other Agencies. FAA's December 1997 implementation plan for the cost accounting system reported the Department of Defense (DoD) and the National Aeronautics and Space Administration might incur additional cost relating to FAA air traffic services. However, FAA had not determined the amount of cost incurred by other agencies to support civilian air traffic operations, nor addressed how the system design will incorporate such cost. These costs are material. For

⁴ For example, the development projects for Standard Terminal Automation Replacement System, and the Wide Area Augmentation System, report current investments of about \$169 million.

⁵ FAA's strategic planning documents, including congressional testimony, report FAA will use the system to accurately measure its services' cost. The cost accounting standard states cost information assists Congress/executives in making decisions about allocating resources and evaluating performance.

instance, according to the General Accounting Office (GAO),⁶ DoD spent about \$124 million annually to handle civilian aircraft traffic.

On April 6, 1998, OMB issued, "Technical Guidance for the Implementation of Managerial Cost Accounting Standards for the Federal Government." OMB states OMB (1) is directed by the cost accounting standard to identify specific costs incurred by other agencies (inter-entity costs) and (2) needs to work closely with the Accounting and Auditing Policy Committee to determine these costs. In its guidance, OMB required entities to report in their FY 1998 financial statements the following cost incurred by entities, but paid by other entities: (1) pension benefits; (2) benefits for retired employees; (3) post-employment benefits, including workers' compensation; and (4) losses in litigation proceedings. OMB also directed agencies to not recognize any other costs, other than these costs, until OMB provided further guidance.

FAA tasked its cost accounting consultant with analyzing this issue and providing recommendations. However, according to its revised implementation schedule published in May 1998, FAA does not plan to address this issue before March 1999, the target date for implementing a fully operational cost accounting system.

According to FAA's Assistant Administrator for Financial Services, FAA will comply with OMB's guidance to capture cost incurred by other agencies. If FAA develops a cost-based user-fee system, FAA could estimate the cost incurred by other agencies until final guidance is received. Without incorporating these costs in the base for user fees calculation, the airline industry would be undercharged for air traffic services provided by the Federal Government.

4. Correction of Labor Cost Errors. FAA's FY 1997 financial statements reported about \$4 billion of personnel cost. To capture FY 1998 and future labor costs by project, FAA implemented a labor distribution module in its payroll system. FAA employees charge their labor hours to specific projects, and the cost accounting system will collect project level labor cost via the payroll system. If project numbers are not entered, the payroll system will not reject the entries. Instead, the system will pass this labor cost to the cost accounting system, and the cost stays in suspense until manual corrections are processed. Until the corrections are made, labor cost, in suspense, will not be subject to cost distribution and allocation. This would be an adequate design feature if the volume of incorrect entries were not excessive. However, our review of FAA's initial prototype reports indicated otherwise.

FAA produced labor distribution prototype reports in November 1997 based on 1 month of Headquarters labor cost, totaling \$6 million, for one FAA

⁶ GAO/RCED-97-106, "Issues in Allocating Costs for Air Traffic Services to DOD and Other Users," (April 1997).

line-of-business. Our review of these prototype reports showed that 50 percent of the labor cost, about \$3 million, was entered with missing project numbers. As of June 1998, these entries were still not corrected.

Considering the volume of entries, FAA must implement more stringent controls in the labor distribution module to prevent missing project numbers from being accepted into the payroll system. FAA Cost Accounting representatives attributed the high volume of initial errors to the prototype start-up of the cost accounting system, and to the need for more discipline and training in proper labor reporting. FAA stated it would address this design issue in FY 1999.

System Implementation Issues

Federal guidelines⁷ govern the design, development, and testing of a system (and its software) that will support managerial cost accounting in a Federal agency. These guidelines are intended to facilitate acquisition, development, and enhancement of systems that provide information in managing and controlling the cost of government. Federal Information Processing Standards Publication 101 also provides an integrated approach to validation, verification, and testing that should be used throughout computer software's life cycle.

The system development process is typically accomplished in sequential phases, such as requirement analysis, design, programming and testing, installation, and operations and maintenance. Each phase consists of a well-defined set of activities whose products lead to the evolution of the activities and products of each successive phase.

As of June 16, 1998, FAA's cost accounting system was in the requirement analysis and design phases. During our audit, we brought the following scheduling issues to the attention of the Cost Accounting Division manager.

- Extraction of performance data is not scheduled. According to FAA's original implementation plan, requirements to extract performance data (e.g., number and types of flights served, inspections performed, and licenses issued) from operational systems will be completed by July 31, 1998. However, the plan did not contain steps for developing and testing this key function.
- Schedule conflicts need to be resolved. We identified major conflicts with premature user acceptance testing and system deployment. System testing and user acceptance testing were scheduled to take place concurrently. System testing requires that the design team test the entire system to ensure all components function properly. User acceptance testing requires FAA's business users to test the system to make sure it meets functional requirements. Federal Information

⁷ Guidelines are included in the Joint Financial Management Improvement Program's "System Requirements for Managerial Cost Accounting."

Processing Standards Publication 101 states system testing should be done before user acceptance testing.

FAA's schedule had system deployment to begin before all system and user acceptance tests are completed. This could result in deployment of a system that contains unresolved errors and reduces user confidence in the system. Subsequently, based on our field work, FAA stated the original implementation plan was being revised to ensure system and user acceptance tests are completed prior to system deployment.

- The original implementation plan does not identify resource needs. The plan contains 261 tasks—e.g., testing, training, and post-conversion monitoring. The plan, however, did not identify who was responsible for completing each task, or the resources that must be provided by lines-of-business. Resource requirements need to be clearly communicated between the cost accounting design team and lines-of-business to ensure achievable milestones.

During the audit, FAA took action and revised its implementation goals for the cost accounting system into two stages; an initial operational cost accounting system by December 31, 1998, and a fully operational system by March 31, 1999. However, a detailed project plan still needs to be developed addressing these issues.

RECOMMENDATIONS

We recommend the Federal Aviation Administrator ensure the manager responsible for designing, installing, and operating the cost accounting system:

1. Designs a systematic method to collect appropriate accounting adjustments and project development cost from DAFIS, and to obtain historical cost for ongoing development projects.
2. Determines the cost incurred by other agencies, and how these services should be factored into FAA's accounting for full cost of operations.
3. Develops edit checks and devises procedures to ensure that records without valid project numbers are corrected for reprocessing.
4. Revises the detailed implementation plan for the cost accounting system by specifying time and resources needed to extract performance data from operational systems, resolving schedule conflicts, and providing sufficient time and resources to perform critical tasks.

Management Comments

We discussed the report findings with FAA's Assistant Administrator for Financial Services on June 16, 1998. FAA comments were considered in preparing this report. FAA agreed with the findings and recommendations.

We appreciate the courtesy and cooperation extended by FAA representatives. If you have any questions on this report, please call me (202) 366-1992, or John Meche at (202) 366-1496.

#