

**THE DEVELOPMENT AND IMPLEMENTATION OF THE
COMMERCE ADMINISTRATIVE MANAGEMENT SYSTEM (CAMS)
AT THE U.S. CENSUS BUREAU**

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Prepared by:

Michael A. Hovland and Jason G. Gauthier,
History Staff, U.S. Census Bureau

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Chapter 1. INTRODUCTION

BACKGROUND INFORMATION

Financial Management Improvement Initiatives

The Department of Commerce has been engaged in an effort to develop and implement common Department-wide administrative systems and processes since the early 1980s, when, in July 1981, it published a plan for consolidating its payroll, personnel, and administrative payments systems.¹ In part, this focus was the result of the continuing interest within the bureaucracy to rationalize and standardize its tools of management, but additional impetus was provided by the Congress, which enacted the Federal Managers' Financial Integrity Act in 1982, intended to ensure that executive agencies internal accounting and administrative controls complied with the requirements of the Comptroller General. The process accelerated in 1988, when the Federal Government's Joint Financial Management Improvement Program (JFMIP) began defining the financial management system requirements for Federal agencies by publishing *Core Financial System Requirements* in 1988, and in periodic revisions thereafter. That publication established the basic capabilities needed for financial management systems in Federal agencies. These included the ability to:

- Collect accurate, timely, complete, reliable, and consistent information.
- Provide for adequate agency management reporting.
- Support general government and agency-level policy decisions.
- Support the preparation and execution of agency budgets.
- Facilitate the preparation of financial statements and other financial reports in accordance with Federal accounting and reporting standards.

¹National Institute of Standards and Technology, "Chronology of Key Events in Commerce's Attempts to Develop Department-Wide Financial Systems," May 1994. P. 1.

- Provide information to central agencies for budgeting, analysis, and government-wide reporting, including consolidated financial statements.
- Provide a complete audit trail to facilitate audits.

Financial Management at the Department of Commerce

A major barrier to ensuring compliance by the Department of Commerce and its component agencies with the various Acts and other directives addressing financial management was the wide variety of accounting systems used by the various agencies within the Department. As late as 1990, eight different accounting systems were in use in the Department. (The following agencies or offices each operated their own system: Office of the Secretary, National Oceanic and Atmospheric Administration, National Institute of Standards and Technology, Bureau of the Census, Patent and Trademark Office, National Technical Information Service, International Trade Administration, and the Economic Development Administration.)²

All of these systems were old and technologically out of date and were difficult to modernize with any significant advantage. The Census Bureau's accounting system's basic design dated several decades and was originally designed to run on tab card equipment. While this system had been approved by the General Accounting Office (GAO) when initially designed, and had been selected by GAO as a model for the Federal government, the operating environment had changed radically since its original inception. The system had been repeatedly modified to run on each new generation of automated equipment, but it had not undergone the fundamental changes needed to take full advantage of technological advances.

²National Oceanic and Atmospheric Administration, Office of the Comptroller. "Department of Commerce Financial Management Systems Plan Planning Period 1990-1995." n.d. (c. August, 1990). P. 4. Hereinafter referred to as "Planning Period 1990-1995."

As a result, the Census Bureau's Finance Division was finding it increasingly difficult to meet its reporting and other responsibilities.³

In 1982, the Assistant Secretary of Commerce for Administration issued a directive to the Department's component agencies forbidding them from using any funds to develop their own financial administrative systems in favor of the implementation of a standard system for the entire Department.⁴ In 1986 the Department tried to implement this policy by purchasing an off-the-shelf accounting system, the Federal Accounting and Reporting System (FARS) and implemented this as the accounting system for the Office of the Secretary and several small Department components. The Department of Commerce viewed the FARS as a possible standard system for the Department's proposed Financial and Management Information System. A private consulting firm (Andersen Consulting Company) was engaged in the fall of 1989 to conduct a feasibility study of replacing the accounting system then in use at the National Oceanic and Atmospheric Administration (NOAA—the largest operating unit in the Department, complete with its own fleet of aircraft and ocean-going research ships). Unfortunately, the study demonstrated that FARS was not sufficient for use by NOAA, let alone for the Department.⁵

³Memorandum, James D. Lincoln (Chief, Finance Division, U.S. Census Bureau) to Clifford J. Parker (Assistant Director for Administration, U.S. Census Bureau). "Conceptual Outline of an Advanced Accounting and Financial Reporting System." October 19, 1989. P. 1.

⁴Development Associates, Inc., "Business Case for the CAMS Systems at the U.S. Census Bureau," June 2000, p. 1; and interview with Mr. Michael S. McKay, September 7, 2000.

⁵"Planning Period 1990 to 1995," op. cit., p. 1. The failure of the FARS project did not end the Department of Commerce's attempts to adopt off-the-shelf accounting systems—the economies of using available systems seemed too attractive to abandon the effort after a single setback. In January 1990, the Department issued a "Request for Information" asking software vendors for information on available off-the-shelf accounting software that complied with the then defined core financial system requirements. No acceptable responses were received.

Department of Commerce Core Financial System Requirements

In January 1990, the Department of Commerce formed the Financial Systems Steering Committee composed of senior executives and financial managers from the major agencies within the Department, and the Office of the Secretary. The Steering Committee was tasked with planning and developing a modern, integrated, Department-wide core financial system, which had to include—

- Funds control and budget execution.
- Accounts receivable.
- Revenue Accounting.
- General ledger and fund accounting.
- Cost accounting and allocation (including labor cost distribution).
- Accounts payable.
- Financial reporting.

The Steering Committee adopted a project management strategy calling for a project management team and various operating unit project teams. The project management team was composed of senior financial managers from the National Institute of Standards and Technology, the Patent and Trademark Office, the National Oceanic and Atmospheric Administration, the Census Bureau, and the Office of the Secretary.⁶ While the detailed objectives of the project were still evolving, and would be impacted not only by changes in the views of the Department of Commerce, but by a series of statutes issuing from the Congress over the next decade, the concept of a centralized Departmental accounting system had become the core of the project.

⁶“Planning Period 1990 to 1995,” op. cit., p. 1, and “Departmental Accounting Administrative Management System Steering Committee Charter.” September 1, 1992, p. 1.

By the time the Department of Commerce was preparing its appropriations request for fiscal year (FY) 1994, the work on the proposed financial management system had reached the point where specific funding and staffing support would be needed to continue. Accordingly, the Department prepared a funding proposal based on plans then in place for the new system.

Operational Concept and Guiding Vision

While the Project Management Team was working on the evaluation criteria for potential financial systems, the Office of Financial Management of the Department of Commerce was developing a general “Concept of Operation for Financial Management” to describe the overall needs that had to be part of the new system, as well as the systems architecture needed to support this concept. The “guiding vision” for the new system required that—

- Financial management permeate all the Department’s programs and operations.
- Financial management be performed within programs and operations by the managers responsible and accountable for sound financial management.
- Program and functional managers understand applicable financial management requirements.

This required a system architecture that would provide managers with the financial data and tools they needed to function as financial managers, ensure the integrity and timeliness of financial management and reporting throughout the Department, and improve the efficiency of these management operations. The ultimate objective was an essentially paperless financial management system in which financial data were obtained as part of the daily program and administrative operations for the agencies involved, and from which the necessary financial reports could be generated for managers without additional manual calculations or intervention.

In addition, the Department needed an open systems environment—i.e., one that provided for the linkage or interconnectivity of hardware/software, as well as the portability of data and applications among different computer environments. The proposed system—soon

generally referred to as the “core financial system,” would have to be operated on multiple sites using most of the available computer platforms.⁷

LEGAL MANDATES

The impulse to streamline and standardize accounting and financial management procedures throughout any organization is a general one. In the case of the U.S. Government in general, and the Department of Commerce in particular, the specific motivation that eventually produced the Commerce Administrative Management System (CAMS) was applied in the early 1980s with the passage by the Congress of the first of a series of statutes directly impacting on the organization and direction of financial management within Federal agencies. The first of these statutes was the Federal Managers’ Financial Integrity Act of 1982, and over the next 15 years, additional statutes fleshed out the requirements of financial management within Federal agencies, each successive act adding to the new structure. The principal legal mandates affecting the development of the CAMS are summarized below.

The “Federal Managers’ Financial Integrity Act” of 1982

The FMFIA requires Federal agencies to establish controls that provide reasonable assurances that (1) obligations and costs comply with applicable law; (2) funds, property, and other assets are safeguarded against waste, loss, unauthorized use, or misappropriation, and (3) revenues and expenditures are properly recorded and accounted for.

The “Chief Financial Officers’ Act” of 1990

This act strengthened efforts to clarify financial management responsibilities by directing specified executive agencies to appoint senior officials to act as chief financial officers, and by

⁷U.S. Department of Commerce, Office of Financial Management. “A Concept of Operation and Guiding Vision for Financial Management Systems.” December 1991. Pp. 1-2. In addition to the general conceptual requirements, this document lists 14 specific requirements for the new system, ranging from standard core financial software centrally maintained and user managed to paperless processing using electronic funds, and specific on-line capabilities (e.g., reservation of funds, validation of funds availability, etc.).

requiring new financial organizations, enhanced financial systems, audited financial statements, and improved planning.

The “Government Performance and Results Act” of 1993

This Act required Federal agencies to “manage by results.” Agencies were required to submit 5-year strategic plans to the Office of Management and Budget (OMB) and the Congress, annual performance plans covering each program activity (to be submitted in January with the President’s budget), and annual program performance reports for the previous fiscal year. The OMB was required to designate specific agencies as pilot projects for performance measures, managerial accountability and flexibility, and performance budgeting.

The “Government Management Reform Act” of 1994

This Act authorized the Director of OMB to consolidate or adjust the frequency and due dates of statutorily required periodic agency reports to OMB or the President, and of agency or OMB reports to congress under any laws for which OMB has financial management responsibility. It also requires audits of executive agencies’ annual financial statements before they are submitted to OMB.

The “Federal Financial Management Improvement Act” of 1996

This Act required agencies to implement and maintain financial management systems that substantially complied with Federal financial management systems requirements, applicable Federal accounting standards, and the United States Government Standard General Ledger “at the transaction level.”

Office of Management and Budget Circular No. A-127

In addition the legislative mandates of Congress, executive agencies are subject to the administrative requirements of the Office of Management and Budget (OMB), which has overall

responsibility for financial management and accounting within the Executive Branch. The OMB provides guidance to executive agencies in a series of “circulars.”

OMB Circular No. A-127 has the most direct impact on the Department of Commerce’s and the Census Bureau’s plans for financial management. The circular directs that each agency establish and maintain “a single, integrated financial system...” incorporating standards and requirements defined by the OMB, the Department of the Treasury, and the agency involved. The new management systems were to incorporate systemic improvements based on analysis of agency needs and cost effectiveness, cross or private servicing capability; and maximum use of “off the shelf” software, jointly developed software, and interagency transfer of software.

Chapter 2: EARLY DEVELOPMENT OF CAMS

PRELIMINARY PLANNING

Establishing the Steering Committee

The initiative to create the Commerce Administrative Management System (CAMS) began with Fiscal Year 1990 as a project to develop a “standard financial system for the Department of Commerce.”¹ When this proposal first was discussed with the financial managers from the agencies within the Department, a counter-suggestion was made that the Department inform the agencies of the kind and the format of the financial information required, and the agencies then would supply that information, in the required format, to the Department. However, this suggestion was rejected.²

In January 1990, the Department had established the Financial Systems Steering Committee to oversee and support this project, together with a Project Management Team to plan the new system. The Financial Systems Steering Committee was succeeded by the CAMS Steering Committee—established by the Chief Financial Office/Assistant Secretary for Administration in September 1992—which had the specific mission of overseeing the development and implementation of the CAMS.³

The Financial Systems Steering Committee consisted of senior management within the Department, with representatives from the Office of the Secretary, the National Oceanic and Atmospheric Administration (NOAA), the National Institute of Standards and Technology

¹U.S. Department of Commerce, Office of Financial Management. Draft. “Major Steps in the Development of the DOC Requirements and the OCD.” April 26, 1994. P. 1. Hereinafter referred to as “Major Steps.”

²Interview with Mr. Michael McKay, former Associate Director for Finance and Administration, U.S. Census Bureau, December 12, 2000.

³U.S. Department of Commerce, Office of Financial Management, “Concept Study: The Commerce Administrative Management System (CAMS),” September 1993, p. 3.

(NIST), the Patent and Trademark Office (PTO), and the U.S. Census Bureau, and was chaired by the Assistant Secretary for Administration or designee. The Steering Committee's task was to oversee the planning for a modern, integrated, Department-wide core financial system. More particularly, its charter later would specify that it was to provide—

- Top-level management support for the new project.
- Guidance regarding fundamental principles.
- Decisions on priorities for additional systems investment.
- Guidance for developing strategies for gaining agency and Congressional support.
- Oversight and review of project progress.
- Financial and staff resources.
- Approval of plans, monitoring of progress, and decisions regarding high-level requirements and design issues.⁴

The Steering Committee met monthly, beginning in January 1990. At its first meeting, the Steering Committee selected a project manager, and reviewed a preliminary project plan.

Project Management and Initial Planning

The Project Management and Project Teams. The Project Management Team, established at the same time as the Steering Committee and subordinate to it, was to—

- Direct, coordinate and control the planning of the project.
- Provide project planning and scheduling.
- Assign specific planning and development tasks to individual agency/office teams and approve their completed work.
- Monitor any contractors used in the project.
- Provide status reports to the Steering Committee.

⁴U.S. Department of Commerce. "Departmental Accounting Administrative Management System Steering Committee Charter." (Revised). September 1, 1992.

- Facilitate crossing function and organizational lines within the Department to communicate with and coordinate the project activities.

The Team was composed of representatives of each of the Departmental agencies and offices that were part of the Steering Committee (i.e., NOAA, NIST, PTO, the Office of the Secretary, and the U.S. Census Bureau [the Census Bureau's representative on the Project Management Team was the Chief of the Finance Division]), and was chaired at this time by an official from NOAA.⁵

Each member of the Project Management Team also headed or supervised a "Project Team" composed of staff from the participating offices and agencies. The Project Teams were responsible for defining functional requirements for the new system, testing possible systems, developing training for users, converting the operating offices to the new system, and phasing out the old systems. The membership of the project teams changed over time as the work went on and different kinds of skills were required by the different teams. However, each team had a core of senior finance, budget, and data processing specialists from the respective agencies involved in the project from its inception.

Preliminary planning: Definitions and Analysis. The preliminary project plan described the initial activities required to prepare for detailed planning to meet the objective of developing and implementing a new departmental financial management system. The Project Management Team developed a paper describing the format for defining the problem. During this phase, encompassing the first half of 1990, the steering committee and project teams evaluated the existing financial management systems in use at the Department and documented their deficiencies. This required the involved agencies to provide the management team with

⁵U.S. Department of Commerce. Draft. "[Financial] Accounting System Steering Committee." n.d. (C. Jan. 1990). P. 1. This document includes an organizational chart listing the agencies represented on the Steering Committee and the names of the individual agency representatives on the Project Management Team. At that time (c. Jan. 1990), a separate project team was in place for each participating agency (i.e., NOAA, NIST, PTO, Census Bureau, and the Office of the Secretary).

documentation describing their current systems, including inputs of all kinds, data processing procedures, the operating environment, and details of perceived deficiencies, limitations, and strengths. This process was completed in July 1990.⁶

The second phase of the project involved the detailed requirements analysis of the agencies' documentation and the establishment of the requirements for the proposed core financial system. During this phase, the Project Management Team assigned responsibility for "working up" designated sections of the requirements to specific agencies participating in the project. Each agency received copies of all the other agencies' current systems documentation and used these in the preparation of their assigned sections. The agency assignments were as follows:

- **NOAA:** Requirements for the operating concept, general support, automatic data processing systems, the general ledger, accounts payable, and cooperating with the PTO in developing requirements for commitment accounting, and obligations.
- **PTO:** Procurement, travel, and document tracking.
- **Office of Financial Management (OFM)** of the Department of Commerce (part of the Office of the Secretary): Writing the requirements for electronic data interface and funds transfer, budget execution and funds control, and property inventory management.
- **NIST** was responsible for accounts receivable and cost accounting.
- **Census Bureau:** Writing requirements for "financial reports."

The requirements sections were drafted by June 1991, and the NOAA compiled the complete document, which was sent to all the participating agencies for a final review.⁷

⁶"Major Steps." April 26, 1994. P. 2.

⁷Ibid., pp. 2-3.

After the agencies had completed their review of the requirements, the Department of Commerce hired a private contractor—Price Waterhouse—to evaluate the document, eliminate duplicate requirements, and categorize the remaining requirements by relative importance (i.e., mandatory, essential, or desirable) and source (i.e., established by the Department of Commerce or under the provisions of the Joint Financial Management Improvement Program).

Review of available systems. Once Price Waterhouse completed its review of financial system requirements, the Project Management Team finalized the result as the “Key Evaluative Criteria” to assess potential Departmental financial management systems—either commercial off-the-shelf (COTS) products, or Government-developed systems. During December 1991, the Project Management Team used these criteria to evaluate 14 potential general financial systems, scoring each system based on the requirements established in the Key Evaluative Criteria. The results of these tests were sent to Price Waterhouse, which used them, together with the original requirements documents and the systems’ documentation from each Departmental agency, to complete a Requirement Refinement Document in January 1992.

Evaluating the CEFMS. The financial system that scored highest among the 14 reviewed in December 1991 had been the U.S. Army’s Corps of Engineers Financial Management System (CEFMS). In April 1992, the Department of Commerce established a new Project Team—the Analysis and Evaluation (A&E) Team—composed of senior financial managers and accounting or data processing personnel from concerned agencies. The A&E Team had overall responsibility for a detailed evaluation of the CEFMS and its possible use by the Department as its core financial system, and established a smaller team (the “Point Team”) drawn from its membership to work together on a full-time basis to complete the analysis. The full A&E team met periodically during the evaluation period to review status and other reports from the Point Team and make decisions on input from the Point Team, directives received from the CAMS

Steering Committee, and to address any other problems or questions to keep the project moving.

The CEFMS was designed as a comprehensive financial management system that included budgeting, accounting, and project management capabilities and could provide managers with timely and reliable financial information. The system's key features included real-time funds control, single-source data entry, relational database technology, and "fourth-generation" tools. The CEFMS was composed of a series of 11 modules, each providing a discrete capability, ranging from work management to cost allocation and distribution.

Unfortunately, at the time of the initial evaluation by the Project Management Team (December 1991), the design and testing of all the modules was still under way, and was not scheduled for completion until October 1992. The Corps of Engineers did not plan to begin using the system operationally until February 1993.⁸

Nevertheless, the CEFMS was designed to carry out several desirable interrelated functions, including—

- Capturing financial data at its point of origin.
- Performing administrative control of funds as the data were captured.
- Updating the general ledger as individual transactions were processed.
- Recording financial data against program budget structures at their lowest levels and automatically "rolling them up" to higher levels.

However, if the CEFMS was to be adopted by the Department of Commerce, these desirable functional capabilities would be dependent upon the Department's successful development and deployment of supporting interfaces for its various general financial administrative systems

⁸U.S. Department of Commerce, Office of Financial Management. Draft. "Master Plan to Implement A Modern Financial System Throughout the Department of Commerce." August 16, 1992. Pp. 2-3, and 22. Hereinafter referred to as "Master Plan."

(e.g., procurement, travel, property, payroll, and time and attendance), as well as for individual agency-specific systems that captured financial data. Furthermore, the concerned agencies and offices had to assure the data integrity of each of the “feeder systems” providing data to the CEFMS. This meant that the Department would have to evaluate all of its feeder systems to determine whether they met the interface and data integrity requirements necessary for use with the CEFMS.⁹

Beginning in September 1992, the A&E Team began a comprehensive review of the CEFMS to determine whether it could be used as the basis for the Departmental core financial system. The evaluation included a 2-day on-line “walk through” of the CEFMS—conducted at the Census Bureau’s headquarters by the Point Team—for Census Bureau program area financial managers and representatives of the agency’s Budget and Finance Divisions.¹⁰ All significant modifications and enhancements to the basic CEFMS and/or specific modules were analyzed to estimate total required technical effort, technical complexity, and consequent attendant risk, cost, and the time needed to accomplish each modification.¹¹

Unfortunately, the results of the evaluation, issued in March, 1993, were that the CEFMS was so specialized to support the Corps of Engineers work that it could not be efficiently modified to support the financial management requirements of the Department of Commerce. The failure of the CEFMS project led the Department’s CAMS Steering Committee to adopt a “fall-back” strategy for developing the CFS. The Committee directed the Commerce-

⁹Ibid., pp. 2-3.

¹⁰“Master Plan,” p. 22, and “Memorandum; Linda J. Vacheresse to Nevins A. Frankel (Chief, Financial and Administrative Services Division, U.S. Census Bureau) and Michael A. Hovland (History Staff, U.S. Census Bureau), February 2, 2001.

¹¹U.S. Department of Commerce, Office of Financial Management, “Concept Study: The Commerce Administrative Management System (CAMS),” (Revised), September 1993. P. i. Hereinafter referred to as “Concept Study.”

wide teams, organized at the start of the project, to conduct market research to identify any commercially developed software packages—i.e., commercial off-the-shelf (COTS) packages—that (1) were certified by the General Services Administration (GSA), and (2) promised to meet the Department’s critical requirements for a core financial system. If acceptable software packages were available, the teams were to:

- Carry out competitive comparisons of the packages to determine which, if any, were best suited for conducting a “proof-of-concept” project centered on the U.S. Census Bureau.
- Conduct this project to acquire the cost-benefit information needed to support a Department-wide cost-benefit analysis for the CFS.
- Perform the Department-wide cost-benefit analysis to provide the Steering Committee with the information needed to determine whether the CFS-package solution could or should be implemented as the CFS component of the CAMS.¹²

THE CAMS PILOT PROJECT

Establishment of the Departmental CAMS Support Center

The development and implementation of the CAMS throughout the Department of Commerce obviously was going to be a major undertaking, and would require both dedicated resources and coordination at the departmental level. Accordingly, the Assistant Secretary of Commerce for Administration directed that a Department of Commerce CAMS Support Center (CSC—initially called the CAMS Implementation Center), with dedicated staff and equipment, should be established. When the CAMS CSC was established in 1992, temporary office space was acquired in Germantown, MD.

Initially, the Department’s idea of the CSC was that it would consist of a minimum number of permanent staff drawn from the Department of Commerce (primarily from the Office of Financial Management), with more personnel detailed from the concerned agencies. The

¹²Ibid.

additional staff would be detailed to the CSC so that they could work on the CAMS project without being distracted by other duties within their own agencies, at least for the period of the detail. The new office was to “focus the right combination of software; hardware, technical staff, and users to pursue a disciplined approach to systems development and implementation.”¹³ The principal missions of the Center were to—

- **Evaluate/enhance the baseline CFS and the targeted system interfaces.** This would include identifying the targeted system software and standard interfaces, testing those components, providing the Bureaus with opportunities to operate the systems, carry out joint application development (JAD) sessions with Bureau representatives and systems programmer teams to modify/enhance the selected systems, and conduct systems acceptance tests to ensure the systems meet all requirements.
- **Systems integration testing and fine-tuning.** This would involve testing interfaces for Bureau-specific feeder systems, enabling Bureau staff to run the systems with their own data and according to their “business culture;” conducting stress tests using varying transaction volumes and points of origin and the capture and processing data under different Bureau-unique platforms; and conduct acceptance tests of the new systems.
- **Make preparations of Bureau installations.** This required the Center to develop Bureau-specific conversion plans, convert data (when applicable), test data conversion to ensure integrity, and ensure that the systems move into a production environment.
- **User training.** The Center would be responsible for developing systems and user documentation, computer assisted training tutorials for users, and conducting classroom and hands-on training sessions for users.¹⁴

As the CAMS project developed, however, the structure of the CSC changed as well. By 1994, the CSC staff had outgrown its temporary quarters in Germantown, MD. When the Department of Commerce decided that the NIST would be responsible for the CAMS pilot project, separate office space for the CSC was leased near the NIST headquarters in Gaithersburg, MD. By that time, the permanent staff of the CSC had expanded considerably, drawing personnel not only from the various agencies interested in the CAMS, but also from the

¹³U.S. Department of Commerce, Office of Financial Systems. Draft, “Commerce Department Financial Implementation Center,” December 1991, p. 2.

¹⁴Ibid. Pp. 2-4.

Systems Division of the Office of Financial Management (OFM) at the Department of Commerce. (Indeed, OFM's Systems Division provided the core of the CSC's staff.) The expansion of the staff of the CSC, and the results of the tests and pilot projects for the CAMS, also led to an elaboration of the CSC's mission. There was an evident need for a central office to coordinate CAMS-related activities in the Department of Commerce, and to provide the software support and technical expertise needed to adapt and maintain the financial management systems being developed and implemented within the Department. This led to the incremental expansion of the CSC's mission from the review and approval of off-the-shelf software packages to the design and maintenance of software systems for incorporation into the core financial system, and the review of agency-specific financial service systems adapted to the CAMS.¹⁵

Financial System Software Requirements

In June 1993, finance officers chose representatives from each agency within the U.S. Department of Commerce to participate in walk-throughs of individual modules supplied by Oracle, Rel-Tek Systems and Design, Inc., and American Management Systems. After reviewing each companies' software, these representatives presented their recommendations on the software in August 1993.¹⁶

In December 1993, the Analysis and Evaluation team requested information from potential software vendors. Participants from each U.S. Department of Commerce agency were asked to evaluate each financial systems software package to ensure that it met the following criteria:

¹⁵Interview with John Sansing (Department of Commerce CSC: CAMS Deputy Program Manager), Jan. 2, 2001.

¹⁶U.S. Department of Commerce, Office of Financial Management. "Core Financial Management System (CFS) Project Management Team Plan to Review Promising Systems." June 15, 1993.

- The system would have to be independently operable by the agencies on their own platforms in a distributed environment.
- The financial system had to be able to operate with the same source software on each of the agencies' platforms.
- The financial software package must employ contemporary technology, so as to ensure cost-effective maintenance and enhancement.
- The financial software must offer a clear migration path to an open systems environment.¹⁷

Pilot Project Agency Selection

The U.S. Department of Commerce pilot agency for implementation of the Commerce Administrative Management System (CAMS) was chosen by the CAMS Steering Committee from among the major agencies and department-level offices concerned with the development and implementation of a "single, integrated financial management system." The most cost-effective strategy for achieving a core financial system (CFS) was to select an existing, up-to-date, and relatively generic system, then adapt it for Commerce-wide use as the agency's core financial system.¹⁸

The U.S. Census Bureau was very interested in the proposed improved financial managements system; the agency's executive staff believed that its current system was incapable of supporting the accounting and administrative burden that would be placed on it by Census 2000. Consequently, the agency offered to undertake the responsibility of conducting the pilot project for the new financial system. The Department of Commerce's Office of the Inspector General suggested that the Census Bureau had not yet filled several critical financial management leadership positions, and that the workload imposed by preparation for Census

¹⁷James Martin Government Consulting. "Implications of the Technical Prerequisites and Decision Criteria for Selection of a Core Financial System." n.d. (c. May 1993), pp. 1-4.

¹⁸U.S. Department of Commerce, Office of Financial Management. "Development of a Commerce Administrative Management System." February 16, 1993. pp. 1-2, 4, and 13.

2000 would pose particular difficulties for the agency in providing the resources needed for the pilot project. Unfortunately for the Census Bureau, the timing of the selection process coincided with the first of the financial audits of the Department of Commerce's major operating agencies required by the Chief Financial Officers' Act. In its Executive Summary of the report, the Department's Office of the Inspector General stated that:

Based on the results of our survey, we concluded that major deficiencies in Census' internal control structure preclude it from being able to produce financial information that can be effectively and efficiently audited. Because of the nature and magnitude of these problems, and the time required to implement corrective actions, we deem it impracticable to attempt an audit of either opening or closing fiscal year 1992 account balances.¹⁹

The Department of Commerce had other reservations as well, including vacancies at that time in several critical positions at the Census Bureau (including the Director, Comptroller, and Assistant Comptroller) and concern that the work of preparing for Census 2000 would impair the implementation of a new financial system.²⁰ Most obviously, however, the Department required that whatever agency served as the pilot for the new system have a "clean" financial audit, so the Census Bureau was effectively eliminated from selection. As a result, the National Institute for Standards and Technology (NIST) was selected as the pilot agency for CAMS because (1) they had a "clean" financial audit, and (2) the agency was willing to implement the pilot project in fiscal year (FY) 1995. Other agencies, including the U.S. Census Bureau, favored introduction of the pilot 1 year later, in FY 1996.

¹⁹U.S. Department of Commerce, Office of Inspector General. *Report on the Financial Statements Preparation and Auditing Survey of the Bureau of the Census*. February 1994. P. ii.

²⁰U.S. Department of Commerce, Office of Inspector General, "Draft Inspection Report: Uncertainties and Risk Surrounding CAMS Implementation," July 1994. P. 19.

Plans and Schedule

The NIST pilot project was to begin in July 1994, at which time the agency appointed an implementation manager and identified the staff and other resources for the project. During the fall of 1994, the NIST implementation staff identified and evaluated feeder systems and developed plans to improve or replace those systems as needed to meet the standards required of the CAMS. Also, the late fall of 1994 was to see the development of the technology architecture and telecommunications systems needed for the CAMS, as well as the acquisition by the NIST of any additional computer or telecommunications equipment or resources needed. The software for the core system was scheduled to be tested in April 1995. Assuming the tests were successful, the agency would begin converting its data from existing systems to the CFS in the following September, complete final testing and switch on the CFS by the end of the month.²¹

Although NIST was the primary agency in the CAMS pilot, all agencies within the U.S. Department of Commerce were involved in the analysis of the selected system. Since NIST was unfamiliar with the accounting within other agencies, it was necessary for all agencies to identify changes necessary to meet their specific needs.²² The effort involved staff from the Census Bureau, the National Oceanic and Atmospheric Administration (NOAA), the National Technical Information Service (NTIS), the Patent and Trademark Office (PTO), and the Office of the Secretary of Commerce, as well as contractors from Andersen Consulting; James Martin Government Consulting; Pilot Research; and Booz-Allen & Hamilton. The project was

²¹U.S. Department of Commerce, Office of Financial Management, "Critical Success Factors and Milestones for Implementing a New Core Financial System at the National Institute of Standards and Technology, Commencing - October 1995," December 1994, pp. 1-2.

²²Memorandum (e-mail). Michael S. McKay and Linda Jo Vacheresse, January 2, 1992.

coordinated by the Department's Office of Financial Management (part of the Office of the Secretary).²³

Operational Capability Demonstrations

The Department required that the candidate systems be tested in an operational environment, and the resulting Operational Capability Demonstrations (OCDs) were conducted from June 1994, through October 1994. The OCDs showed that the Oracle-based Federal Financial Management System (FFMS) software developed by Rel-Tek System & Design, Inc., of Chicago, IL, met approximately 80 percent of the criteria developed by the Core Financial System Steering Committee. During this time period, the Rel-Tek software underwent and passed OCD tests and several weeks of intensive "life-cycle" transaction testing which were part of the Department of Commerce's acquisition process. Rel-Tek's off-the-shelf software, which was in use at more than 100 organizations throughout the United States and Canada, was comprised of several highly integrated modules, including general ledger and financial reporting, payment management, receipts management, funds management, cost accumulation and allocation and workflow management.

²³U.S. Census Bureau, Census Implementation Team, "Bi-Monthly CAMS Status Report March 1 Through March 15, 1995." n.d. (c. March 1995), p. 1. Hereinafter referred to as "Bi-Monthly Status Report."

Award of Core Financial System Vendor Contract

On December 1, 1994, Andersen Consulting was awarded the primary contract for establishing a financial management system for the U.S. Department of Commerce.²⁴

²⁴U.S. Department of Commerce. "Memorandum for the Secretary: Notification of Contract Award to Andersen Consulting." December 1, 1994. The contract included subcontracting goals of 60 percent for small businesses, 27 percent for small disadvantaged businesses, and 15 percent for woman-owned businesses.

Following the awarding of this contract, Andersen Consulting named Rel-Tek System & Design, of Chicago, IL, as a subcontractor and software vendor of COTS products.²⁵

Rel-Tek Software Implementation

In January 1995, Rel-Tek installed its software on the RISC 6000 at the Gaithersburg, MD, Implementation Center.²⁶ Following testing, training, and demonstrations for CSC teams, the initial assessment by the CSC noted 68 modifications required to the software, including repair of coding “bugs,” modifications to the software’s financial reporting capabilities, and several problems resulting from an inadequate understanding of Federal Government business rules.²⁷ Rel-Tek revised its software and delivered these revisions in March 1995. Additional modifications were scheduled for completion by May 1995, but the company failed to meet the completion date. Failure to deliver product within the contracted time frame would be a continuing problem for Rel-Tek.²⁸

In 1996, the CSC continued working with Rel-Tek to correct software problems, however, the company demanded substantially more money than was originally proposed. Rel-Tek was a very small firm (with fewer than 15 employees at the time the initial contract was awarded) and could not provide the product support or meet the deadlines for product delivery. Because of these delays, the U.S. Department of Commerce withheld payment for the disputed software components.

In the meantime, the Department of Commerce’s plans for the CAMS pilot changed rather drastically. Initially, the single pilot project was intended to produce a “proof of concept”

²⁵U.S. Census Bureau, Financial and Administrative Services Division, “CAMS Briefing Documentation: History of CAMS,” February 2000, p. 4. Hereinafter referred to as “CAMS Briefing.”

²⁶“Bi-Monthly CAMS Report,” March 1995.

²⁷Interview with Michael S. McKay, September 7, 2000.

²⁸“CAMS Briefing,” pp. 5 and 7.

that would then be followed by the implementation of the CAMS CFS throughout the Department. As early as June 1994, the Department and the Census Bureau signed a memorandum of understanding that established October 1995 as the date for deploying the CFS at the Census Bureau (i.e., simultaneously with the scheduled deployment of the CFS at NIST—see below for details of this memo), and by mid-1994 the Office of the Secretary (of Commerce) also was scheduled to implement the CAMS CFS in October 1996.²⁹

This was a rather ambitious schedule, particularly as the delays in the delivery of acceptable software continued. By summer of 1995, these delays posed a particular problem for the U.S. Census Bureau. The agency needed the financial administration system in place and operating in time to provide support for the Census 2000—and it wanted to have the system working in time to test its capabilities in the Census 2000 Dress Rehearsal in 1998. Unless something was done to accelerate the project, it seemed less and less likely that this would be achievable.

THE CENSUS BUREAU CAMS PILOT PROPOSAL

By the spring of 1996 the Department of Commerce's Inspector General found that the CAMS project had fallen substantially behind schedule, to the extent that the entire project might be in jeopardy. The project was underfunded, substantially over originally estimated costs, and was experiencing "unanticipated performance shortfalls, causing schedule slippage."³⁰

In the summer of 1996 the Chief Financial Officer of the Census Bureau, who also was serving as Chairperson of the CAMS Steering Committee, urged the Department of Commerce

²⁹U.S. Department of Commerce, Office of Inspector General, "Draft Inspection Report, Uncertainties and Risk Surround CAMS Implementation," July 1994, p. 5.

³⁰Statement by Frank DiGeorge, Inspector General, U.S. Department of Commerce, Before the Subcommittee on Commerce, Justice, State, the Judiciary, and Related Agencies, Committee on Appropriations, U.S. House of Representatives. April 25, 1996. P.5.

and the contractor to “fix” the continuing problem. In August, the Steering Committee forced the delivery and acceptance of the Rel-Tek software, largely due to the need of the Census Bureau to have the new core system in place quickly.³¹ (After lengthy negotiations, Rel-Tek and the U.S. Department of Commerce jointly terminated their relationship in 1997. The original contract with Andersen Consulting stipulated that the licensing agreement gave source code ownership for the vendor’s software to the Department, which contracted with a third party, small-business technology provider to act as the software maintenance vendor.³²)

The Department of Commerce and the Census Bureau had signed a memorandum of agreement on the implementation of the CFS in June 1994.³³ The memorandum established (1) October 1, 1996, as the operational date at the Census Bureau for the new system, (2) that the then current operational concept of distributed processing on individual bureau platforms would be maintained, and (3) that the Department of Commerce would make resources available to support the Census Bureau’s implementation effort. With regard to the latter commitment, the resources the Department would make available included—

- Purchasing the core financial system software and required supporting software.
- Directing the Department’s CSC to work closely with and providing guidance and training to the Census Bureau’s implementation team and other staff.
- Providing a contractual vehicle for the Census Bureau to obtain contractor support. (The Census Bureau remained responsible for funding any required software license fees and contractor support required to operate the system on agency hardware and to implement the system at the Census Bureau.)

³¹Interview with Michael Stogsdill (CAMS Implementation Coordinator, NIST), October 13, 2000.

³²Telephone interview with John Sansing (CAMS Deputy Program Manager, U.S. Department of Commerce,” January 2, 2001.

³³“Memorandum of Agreement Between the Department of Commerce and the Bureau of the Census.” Signed June 1994.

While the Department of Commerce and NIST were working with Rel-Tek, the Census Bureau executive staff was becoming increasingly worried that the new system could not be implemented early enough to provide the needed financial management for the Census 2000. They considered the agency's old system incapable of supporting the decennial census financial management requirements, and, in any case, that system ran on a UNISYS platform that would not be available in 2000. Moreover, the Census Bureau wanted to have the new management system in place soon enough to use it to support the 1998 dress rehearsal, to enable any "bugs" to be worked out before the "main event." Accordingly, the Director of the Census Bureau decided to ask that the new system be implemented at the agency in Fiscal Year 1996.³⁴

In the meantime, the continuing difficulties and delays with CFS software led the NIST management to reconsider their own part of the project. When the Census Bureau requested that it activate its own pilot project in order to get the system online in time to support Census 2000, the Department of Commerce had to consider whether it had the resources needed to support multiple simultaneous CAMS pilots at separate agencies. Accordingly, given the need for the Census Bureau to have the system operational at an early date, that agency became the sole pilot project for the CAMS implementation.³⁵

³⁴U.S. Census Bureau. Draft memo, "Guiding Principles for Memorandum of Understanding—Census Bureau CAMS Implementation." January 20, 1995.

³⁵Stogsdill interview, *op. cit.*

Chapter 3. IMPLEMENTATION OF CAMS AT THE CENSUS BUREAU

THE CENSUS BUREAU CAMS PILOT PROJECT

Background Information

The Census Bureau faced the necessity of having a serviceable financial management system in place and operational before Census 2000 got underway, and the agency considered the system in use since the 1960s to be incapable of supporting the administrative load Census 2000 would impose. The only practical alternative was to get the CAMS core financial system (CFS)—and as much as possible of the rest of the system—operational prior to the census. Given the time constraints, the agency's executive staff decided it had to begin installing the CFS as soon as possible. Since the other Departmental agencies' schedule for CAMS implementation were dependent upon how well the pilot project went, the Census Bureau's activation of the pilot—and, presumably, the demonstration of a workable CFS—became the keystone of the Department of Commerce's CAMS project.

As part of the general effort within the Department of Commerce to improve financial management, the Census Bureau had reorganized its financial administration in June 1994, adding a new Principal Associate Director and Chief Financial Officer, who would be responsible for financial management for the agency. In addition, executive staff-level positions were created for a comptroller (with assistant comptrollers for finance and budget), information technology, and planning and organization development. Further, in March 1995, the Census Bureau selected its own CAMS Implementation Manager and, in December 1995, established the Commerce Administrative Management Systems Implementation Office (CAMSIO) for the purposes of overseeing CAMS-related activities at the agency.¹

¹ "Bi-monthly CAMS Report," March 1995, p.4; and memorandum (e-mail) from Charles J. Miller, Organization and Project Management Branch, Human Resources Division, U.S. Census Bureau, February 26, 2001.

The Census Bureau would begin implementing the CFS pilot project in October 1996. The Census Bureau combined the CAMSIO (in its entirety) with the Administrative and Network Systems Office to form the Financial and Administrative Services Division (FASD) in December 1996. (FASD, together with the Census Bureau's Finance Division (FIN) would have the primary responsibility for overseeing the implementation of the CFS at the Census Bureau, together with the activation of the associated financial management modules as the integration of the full CAMS proceeded.)

Census Bureau CAMS Preparations

U.S. Department of Commerce had launched the general CAMS project late in 1993, with the National Institute of Standards and Technology (NIST) chosen as the pilot agency for the project (see Chapter 2). Census Bureau staff participated in the planning and preparations for the NIST pilot project, including detailing personnel to the Department's CAMS Support Center (CSC) during the initial phases of the project. While the NIST was the lead agency in this effort, the Census Bureau began its own preparations to implement the CAMS to ensure that the system was operational in time to provide administrative support for Census 2000. In January 1995, Census Bureau staff participated in a demonstration of the NIST CFS in Boulder, CO, and the Census Bureau CAMS Implementation Team underwent CFS familiarization training in the following March. Two production software modules—the Order Entry and Time and Attendance (both CAMS feeder applications) modules—were demonstrated at the Census Bureau in March, 1995 as well.²

By February 1996, the Census Bureau had prepared a CFS deployment plan based on the currently available software, with delivery of working versions of all CFS software modules

²"Bi-Monthly CAMS Report," op. cit.

by March 1, 1996. Production-ready CFS modules were to be delivered to the Census Bureau by May 1, 1996.³

Implementing CAMS at the Census Bureau

General information. The problems encountered by the Department of Commerce and the NIST with commercial off-the-shelf systems in the original CAMS pilot led, late in 1996, to the Census Bureau's request to take the lead in completing the project—a request impelled by the agency's need to have the CFS in place and operating to support Census 2000.⁴ In October 1996, the Census Bureau began “turning on” the CFS, implementing the General Ledger and the Budget Execution modules. In the following December, the enhanced Cost Allocation module was delivered and the agency began full cost-allocation and management reporting, making the CFS its system of record.⁵

The “legacy” systems. When the Department of Commerce began moving toward a department-wide financial management system, the U.S. Census Bureau had already developed and begun using several financial and administrative applications—24 in all, generally referred to as “legacy systems”—that ran on UNISYS and VAX computers. These applications had been designed to operate on the then available computer systems at the

³U.S. Census Bureau, “Core Financial System (CFS) Deployment Overview,” February 1996, p. 2. Hereinafter referred to as “(CFS) Deployment Overview.”

⁴Development Associates, Inc., “Business Case for the CAMS System at the U.S. Census Bureau,” June 2000, pp. 1-2. Hereinafter referred to as “Developmental Associates, Inc.” By the time the Census Bureau began CFS implementation in October 1996, the original Rel-Tek software [see Ch. 2] had been modified to such an extent by the Department of Commerce that the vendor no longer supported the CFS. The original pilot project plans called for the implementation of the CFS not only at NIST, but at the Census Bureau as well, by October 1, 1995. Indeed, the U.S. Department of Commerce's Office of Financial Management's “Strategy to Assist the Bureau of the Census in Implementing a New Core Financial System” (n.d., c. December 1994) envisioned the same schedule for CAMS related activities at the Census Bureau as at NIST (see Ch. 2). The Office of the Secretary of Commerce also was to convert to the CAMS during the same period.

⁵U.S. Census Bureau, Financial and Administrative Services Division. “CAMS Briefing Documentation: History of CAMS.” February, 2000. P. 6

agency—some using COBOL and some using the INGRES database management system. As new hardware systems and more elaborate administrative requirements appeared, it was not certain that the legacy systems would be able to function without upgrading and modification. Furthermore, the computers on which they were used needed to be replaced, and the accounting systems were facing possible Y2K-compliance problems.

These problems led the Census Bureau's CAMSIO, with the aid of the prime contractor for the project, Andersen Consulting, to—

- Redesign the legacy systems by developing and building a generic extract interface and a budget interface to bring transaction data from the legacy systems to the CFS.
- Discontinue the use of the UNISYS computer to the degree possible. (The Census Bureau acquired a Digital Alpha 8400 computing platform running the CFS software under Digital UNIX.)
- Discontinue using all remaining legacy systems as soon as practical.
- Use the new CAMS financial feeder systems, as the legacy systems were redesigned, to automatically generate the journal entries and enter them into the CFS in real-time.⁶

CFS project schedule. In order to have the basic CFS and the necessary additional financial management modules working smoothly in time to support the Census 2000 Dress Rehearsal, scheduled for 1998, the Census Bureau established a relatively stringent schedule for implementing the CAMS. The Census Bureau had prepared a memorandum in September 1995 to the Deputy Director of the Department of Commerce's Office of Financial Management outlining plans for deploying the CAMS at the agency. The key milestones in the document called for beginning an initial phased deployment of the CFS in October 1996, with full deployment within 12 months.⁷

⁶Development Associates, Inc., op. cit., pp. 3-5; and U.S. Census Bureau, *2000 Operational Information Technology Plan: Finance and Administration*, June 1999, p. 6.

⁷Memorandum: Robert R. Bair (Census Bureau CAMS Implementation Manager) to Douglas K. Day, through Frederick T. Alt (Principal Associate Director and Chief Financial Officer, U.S. Census Bureau). "Draft Census Bureau CAMS Implementation Plan." September 29, 1995.

When the Department's CAMS Steering Committee agreed to the Census Bureau's request to initiate the CAMS pilot project in the following year, the planned schedule adhered closely to the one established in that memorandum. Initial deployment was to begin immediately—October 1, 1996—with the following primary objectives—

- Interface then current accounting batches to the CFS General Ledger.
- Provide support through the current accounting system to some subsidiary accounts as necessary.
- Enable the agency to use the CFS for financial reporting.

Within 12 months—by October 1, 1997—the agency planned to have the following additional capabilities in place—

- Use of all CFS modules.
- The capacity to capture financial transactions at the detail level.
- The capacity to turn off the current (old) accounting system.

Full implementation of the CAMS now was scheduled for June 1998, by which time the Census Bureau planned to have use of the functional modules integrated with the CFS (including Payroll Interface, Travel, Commerce Small Purchase Card System, Property Sales Order Entry, and Inventory), and to be able to “turn off” the current (old) financial feeder systems (e.g., AIMS).⁸

Deployment. The Census Bureau's plan called for deployment of the CFS in three phases, together with general operations. During Phase 1, the Census Bureau planned a limited implementation of the CFS—specifically the General Ledger, Accounts Payable, Accounts

⁸U.S. Census Bureau. “Census Bureau CAMS Implementation/Deployment Plan,” May 1996. Pp. 1-4. This schedule also is spelled out in detail in a report prepared by Andersen Consulting, “CAMS Deployment Planning, Task 51.4: Detailed Analysis of Selected Options: Project Report,” submitted in December 1996.

Receivable, Cost Accumulation, and Budget Execution modules, but with no use of functional modules.

During Phase 2, or “target implementation,” in Fiscal Year (FY) 1997 (October 1, 1996, to September 30, 1997), the agency planned to replace its feeder systems with the functional modules as they became available, with direct data entry to the Rel-Tek screens, and roll-out the CFS to program offices and the Bureau’s regional offices. The Census Bureau’s Budget and Purchase Management Information Systems, Bank Card Information System, and Travel Management System were to be replaced by CAMS modules during Phase 2, the integrated Order Entry Application system would be implemented, additional process control improvements would be made, and the CFS would have full funds control.⁹ The general, ongoing activities included the support of the Department’s CAMS initiatives; project management, technical support, and communications; and deployment of the Order Entry Application and Inventory modules as they were released.¹⁰

Phase 3 was the Department of Commerce’s “pilot” portion of the CFS, which was to be completed by June 30, 1998. This phase was to include operational use of the systems for processing complex invoice documents, full accounts receivable, activation of online funds control, integration of the Oracle-converted and newly built functional modules, and production of standard Office of Management and Budget and Treasury financial reports.¹¹

The implementation plan for Phase 1 was underway even before the Census Bureau became the lead agency for the CAMS pilot program—activities for Phase 1 deployment were

⁹“(CFS) Deployment Overview,” pp. 3-8. It will be noted that the Department of Commerce, specifically the CAMS Support Center, now was responsible for the maintenance, modification, and support of the Rel-Tek software.

¹⁰U.S. Census Bureau, “CFS Implementation Planning,” February 1996, p. 11.

¹¹Ibid., and *2000 Operational Information Technology Plan: Financial Management*, op. cit., p. 7.

scheduled for February through October 1996. The plan called for external (e.g., the National Finance Center, which handled payroll for the Census Bureau) and internal feeders (i.e., those systems supplying information to the financial management system) providing data to create the general ledger work batches, extraction of specified files (e.g., disbursements, undelivered orders, etc.), and their reformatting to CFS requirements. Working versions of all CFS software modules were to be delivered to the Census Bureau by March 1, 1996, and production-ready versions of the modules by May 1, 1996.¹²

The implementation schedule was dependent on the timely delivery by the Department of Commerce's CSC of *production-ready* CFS modules to the Census Bureau. Unfortunately, there were delays in the delivery and implementation of some the processing modules. In Phase I, for example, the Accounts Payable and Accounts Receivable modules deployment did not begin until April and May 1997—7 and 8 months, respectively, from the start date of Phase I implementation. Moreover, the Accounts Payable module, while fully implemented for the Census Bureau pilot project by the end of September 1997, continued to have a problem involving invoicing for contract services. Prior to correction, the original module could only receive services by quantity, not by dollar amounts. This was a significant problem for an accounting system intended to produce financial reports, and the agency's Finance (FIN) and Acquisitions Divisions established a design team to develop corrections. The design team developed a "work around" that modified the processing system to correct this problem.¹³

¹²"CFS Implementation Planning," op. cit., p. 13.

¹³U.S. Census Bureau, "Census CAMS Pilot Status and Issues, 8/25/98," August 1998, pp. 1-6.

The Department of Commerce's CAMS Support Center (CSC) supplied a set of menus facilitating access to applications in March 1997, and a series of CAMS modules and legacy applications were deployed at the Census Bureau during the pilot project,¹⁴ including—

- The Generic Approval Tracking System (a utility program used for management approval and document tracking): implemented September 1997.
- The Employee Roster (providing “look-up” information about Census Bureau employees such as room and telephone numbers): implemented September 1997.
- Commerce Purchase Card System (this CAMS module allows cardholders to log purchases and receives electronic credit card transactions and allows for reconciling credit card purchases made by Census Bureau staff): implemented April 1998.
- The Commerce Small Purchase System (a CAMS module that allows requests for procurement of goods and services and is used by agency procurement officers to place purchase orders or contracts): implemented April 1998.

As the modules and applications were implemented, the Census Bureau found that there were additional capabilities required that had not been part of the original specifications and that the software as delivered could not provide. (Andersen Consulting [the company became Accenture, Inc. in 2000], the prime contractor for the CAMS project, tested the software modules released to the Census Bureau by the CSC during the implementation phase of the CAMS/CSF.¹⁵) Moreover, the Census Bureau's staff had difficulties developing the

¹⁴Memorandum (e-mail): Thomas L. Cochran to Nevins A. Frankel, Chief, Financial and Administrative Services Division, February 8, 2001. Delivery of applications and modules, and modified versions of those systems once released to the agency, continued to be made up to the time of this writing.

¹⁵Interview with Michael S. McKay (Associate Director for Finance and Administration, U.S. Census Bureau), September 7, 2000, and Memorandum from Adolph F. Cecula, Jr., Financial and Administrative Services Division, U.S. Bureau of the Census, February 5, 2001. At one point, the Census Bureau offered to purchase a computer system (the DEC 84 mainframe was the equipment selected for the purpose) for the CSC so that the latter could do the kind of testing the Census Bureau believed was necessary, but the offer was turned down by the Department of Commerce.

modifications required to enable its feeder systems to interface with the CFS, blocking the conversion of the data to the required format.¹⁶

The “Core” CAMS

While the Census Bureau and the Department were making considerable progress in implementing the CAMS program, there were serious problems with the project, and internal reviews conducted by the Department of Commerce’s Inspector General indicated a need for reassessing the implementation strategy. In October 1997 the Office of the Secretary of Commerce intervened and directed that, with only parts of the system activated at the Census Bureau, the department-wide project was to be scaled back from a complete implementation of the full CAMS to a pilot test of the “Rel-Tek-based Core CAMS”—i.e., the CAMS CFS plus the Purchase Card, Time and Attendance, and Small Purchase modules. The Department focused the bulk of the resources available to support the pilot project at the Census Bureau (although the effort to implement the Accounts Payable module at NOAA continued as well), and hired an independent contractor—Booz-Allen & Hamilton—to evaluate the strategy, systems, pilot results, and business case for moving ahead with Department-wide implementation of the “Core CAMS.”¹⁷

The Independent Verification and Validation (IV&V) Project

Booz-Allen & Hamilton carried out the Independent Verification and Validation (IV&V) evaluation of the CFS deployment at the Census Bureau between May 15 and August 15, 1998.

The IV&V project looked at—

- The CAMS pilot project strategy and plans.

¹⁶U.S. Census Bureau, “Core Financial System (CFS) Deployment Overview,” February 1996. Op. cit. P. 6.

¹⁷U.S. Department of Commerce, Office of the Chief Financial Officer, Draft, *Business Case for Implementation of a Commerce-Wide Financial Management System*, November 1998. P. 18. Hereinafter referred to as “*Business Case*.”

- The CFS product.
- CAMS pilot project results
- Validation of the business case for CAMS.¹⁸

In their report, Booz-Allen & Hamilton asserted that the pilot program had demonstrated that the Rel-Tek-based Core CAMS worked at the Census Bureau and that the software had a “high degree of acceptance” by financial managers at the Census Bureau and by NOAA staff assigned to assist the Census Bureau in its implementation. Further, there were no “show stopper” issues of functionality, performance, or operations for the system. They concluded that a few relatively minor enhancements of the Core CAMS system would make the system as good or better than other commercial off-the-shelf (COTS) financial management systems used in other large government agencies.¹⁹

With regard to validating the business case for CAMS, the IV&V review noted that while the Rel-Tek-based Core CAMS was successfully implemented, the changes that the Department of Commerce and the Census Bureau had made to the original Rel-Tek COTS package were of such magnitude that it was no longer supported by the original vendor (the Department’s contract with Rel-Tek, Inc., was terminated by mutual agreement in 1997, and a third-party contractor had been hired to provide the necessary support). The lack of a current vendor raised the question of whether the Department of Commerce should continue further implementation of the Core CAMS with its other agencies, or if alternatives should be considered.²⁰

¹⁸Booz-Allen & Hamilton, *CAMS Independent Verification and Validation: Task 2 Draft Report: Assessment of the Core Financial System*. June 1998, P. I-1.

¹⁹*Business Case*, p. 2.

²⁰*Ibid.*

REVISITING THE CAMS PROJECT

A New Business Case for CAMS

The Department of Commerce had not revisited what was being done with regard to the CAMS since 1992 until the 1998 Booz-Allen & Hamilton IV&V review focused on a close look at costs and benefits of the system as it had evolved in the interim. A team of Department of Commerce officials and contractor staff attempted to identify problems with the CAMS project to date and to evaluate the system with regard to its implementation Department-wide or, if not, to identify alternative Department-wide financial management systems. To the extent possible, the benefits to be realized by implementing CAMS were quantified and compared to probable costs, and evaluated under the established Department of Commerce criteria.

The review resulted in the production of a new “business case for CAMS” that redrew the requirements for the financial management system within the Department of Commerce.

The review considered four alternative management systems for the Department—

- A standardized Rel-Tek based core CAMS.
- Implementation of the standardized Rel-Tek based system at the U.S. Census Bureau while the Department’s other agencies select equivalent commercial-off-the-shelf (COTS) financial management systems for their use.
- Implementation of the Rel-Tek based CAMS at NOAA and NIST, with cross servicing at other agencies.
- Outsourcing Department of Commerce financial management.²¹

Of the major bureaus comprising the Department of Commerce, only the U.S. Census Bureau remained committed to completely integrating its financial management into the CAMS.

(The Census Bureau, by this time, had little choice. It already had introduced the General Ledger and Financial Reporting, Cost Allocation, and Budget Execution modules of the Core

²¹Ibid., p. 4.

Financial System prior to the 1998 review of CAMS, and completed implementation of the pilot project by adopting the Small Purchases, Commerce Purchase Card System, and Time Reporting and Labor Cost Distribution System modules by April 1998—i.e., in time to test the system during the 1998 Census Dress Rehearsal.²²)

The new business case retained the idea of the CFS (core financial system) that would encompass modules for—

- General ledger and financial reporting.
- Payment management.
- Receipts management.
- Funds management.
- Cost management.
- Workflow management.

In addition to the CFS, only the Labor, Small Purchases, and Purchase Card modules of the original proposed CAMS—comprising a new “Core CAMS” (see p. 37 above)—would be incorporated into the Department-wide system. Most agencies then would modify their old financial systems to permit them to interface with the CFS. The CFS would be compliant with the Joint Financial Management Improvement Program (JFMIP) guidelines, as well as provide an effective audit trail and produce the necessary financial reports.

Deploying the CAMS in the Department of Commerce

The Department of Commerce sharply reduced the requirement for implementation of the CAMS by other Department agencies until the completed deployment at the Census Bureau. Other than contributing staff to the pilot project, all the participating agencies but NOAA halted CAMS-related activities. NOAA continued limited efforts to implement the

²²Department of Commerce, Office of Chief Financial Officer. “Chief Financial Officer’s Financial Management Status Report and Five Year Plan 1997-2001.” c. 1997. Pp. 3-4, and 7.

Accounts Payable module).²³ The CFS still was to be implemented throughout the Department of Commerce, but the other components of the CAMS would be integrated into the individual agencies' current financial administration as considered necessary. "Phased deployment" of the CFS was to begin in most agencies—except the National Technical Information Service [NTIS] and the Patent and Trademark Office (PTO)—in Fiscal Year (FY) 1999, depending on the results of the pilot project. Implementation of the CFS was to be complete in most agencies during FY 2000. (The NTIS and PTO were to begin implementing the CFS in FY 2000 for completion in FY 2001.) For the major agencies, the additional CAMS modules that were planned to be implemented, depending on the results of the Census Bureau pilot project, were as follows:

- **National Institute of Standards and Technology (NIST).** NIST planned to implement the Small Purchases, Commerce Purchase Card System, and Time Reporting and Labor Cost Distribution System when it implemented the CFS.
- **National Oceanic and Atmospheric Administration (NOAA).** NOAA intended to implement the Commerce Purchase Card System in the summer of 1998, and to tie its own key functional systems to the CFS modules. Eventually, the agency planned to implement the Small Purchases, Accounts Payable, and Labor Cost Estimating System with the Cost Allocation module.
- **International Trade Administration (ITA).** The ITA planned to implement the Commerce Purchase Card System in May and the Small Card Purchases System in August 1999.

²³Ibid. P. 5.

WORKING TOWARD A COMPLETE CAMS

Completing Deployment of the CAMS at the Census Bureau

The full activation of the CAMS CFS in June 1998, did not end the Census Bureau's work on the system. Although the CFS became the agency's financial system of record, providing administrative support for Census 2000, the deployment and implementation of CAMS modules and other applications continued after the agency "turned on" the CFS. The Census Bureau's FASD continued to work with the Department of Commerce's CSC to complete deployment of the CAMS. The objectives of the CAMS at the Census Bureau remained to support a paperless, seamless operation in which financial data were captured as a byproduct of program and administrative work.²⁴

Following the activation of the full CFS at the Census Bureau, deployment of the remaining CAMS modules went on through FY 2000 and the conversion of the transactions still being carried out on UNISYS legacy systems to generic input processes that could interface with the CFS. By June, 2000, 21 of 26 CAMS modules were in use at the Census Bureau, with 6 (including 1 actually in use) still in development. By that date, 16 of the Bureau's legacy systems (including all those originally used on UNYSIS equipment) had been replaced by the CAMS, while 7 remained in use.²⁵

The Department of Commerce's CSC remained responsible for the development and maintenance of certain feeder systems used at the Census Bureau, including a CFS Data Warehouse and the Organization Codes, as well as the Open Voucher Post (used for posting records from the Commerce Purchase Card System to the CFS) and the Invoice Validate and

²⁴U.S. Census Bureau, *1999 Operational Information Technology Plan: Management Support*. June 1998. P. X-5.

²⁵Developmental Associates, Inc., p. 12. The Education & Training MIS Plus, Position Description Library, Property & Tort Claim System, Request for Overtime, and Security Clearances Plus modules were still in development in June 2000.

Post (which automatically validated and posted invoices to the CFS using data received electronically from various sources).²⁶

Problems and Responses

Following the Department of Commerce’s release of its new business case for a department-wide financial management system, the Census Bureau remained the only agency committed to the full deployment and integration of the CAMS, and began moving from the implementation phase to developing financial management capabilities using the new system.²⁷ This did not mean, however, the CAMS was fully functional. Indeed, as the new system was deployed and the Census Bureau staff began processing financial information, new problems surfaced, and had to be corrected. Some portion of these problems were inherent in the limitations of the original Rel-Tek-based software on which the system was based. The original package had been selected because it appeared to meet 80-to-85 percent of the original requirements for a COTS financial management package—an impressive proportion, but, as one agency official put it, “...that 15 percent will kill you.”

For the CAMS, “that 15 percent”, in conjunction with changes required by users and by the Department of Commerce, time constraints, and other factors, contributed to a fairly steady stream of problems with using the various financial management modules in the operational environment at the Census Bureau. Each of these problems required a “workaround”—i.e., the Census Bureau’s FASD and/or FIN staffs and the Department’s CSC have had to devise some other means of entering data for the affected module(s) (a substantial proportion of these problems showed up in the CFS software itself, but they also involved the Travel Management

²⁶Ibid., p. 13.

²⁷U.S. Census Bureau, *1999 Financial Report*, May, 2000, p. 9-11.

Information System module, the Commerce Small Purchase System, etc.) or find some other way to compensate for the problem in order for the processing to continue.²⁸

The Census Bureau's continuing difficulties in implementing a production-ready CAMS led to discussions between the agency's Chief Financial Officer and the staff of the Department of Commerce's CSC regarding the level and quality of support provided by the latter. The Census Bureau contended that the CSC had not programmed the necessary financial reports to support the agency's accounting operations, which caused considerable delays in the Census Bureau's financial reporting (delays in producing acceptable financial reports were a particularly sensitive subject because of the annual financial audits of the agency). The Census Bureau had been compelled to develop a number of "work arounds" to compensate for flaws in the software received from the CSC, and the CSC had made changes to the processing software without informing the Census Bureau staff—causing the processing modules to malfunction or to cease working altogether.²⁹ Correction of problems within software released to the Census Bureau posed a continuing problem. The agency used "Activity Requests" (ARs) describing the problem to inform the CSC of difficulties—assigning priority to each AR based on the impact of the problem on the capability of the system to perform as required (Level 1 had the highest priority, while Level 2 ARs were to be corrected as soon as the Level 1 problems were resolved. Level 3 was the lowest priority and, as a practical matter, were generally identified "for the record", rather than in the hope that they would be corrected.)³⁰

²⁸Memorandum, Nancy Potok, Principal Associate Director and Chief Financial Officer, U.S. Census Bureau, to Roger Baker, Chief Information Officer, Commerce CAMS Support Center, "CAMS Support," September 8, 1999.

²⁹Ibid.

³⁰"FIN/FSD CAMS AR Listing," February 2001. As of February 2001, there were 203 ARs to be resolved—10 Level 1 cases, 70 Level 2, and 123 Level 3.

The Census Bureau and CSC staffs worked together to develop and recommend ways to correct the problems the Census Bureau had with the CAMS software, and the CSC agreed to change some of the procedures involved in its CAMS support operations at the agency. The Census Bureau first identified the financial reporting capability it considered critical to its audit effort, and the CSC staff then analyzed and, where appropriate, reprogrammed the software for these reports to try to assure that they provided the required information accurately. A factor in the difficulties experienced by the Census Bureau was the sheer volume of releases of new versions of the CAMS software; the agency's capacity to test the software as it was released was limited, so the CSC agreed to modify its schedule. (New versions of CAMS applications were being released at approximately 1-month intervals through mid-1999.) The Census/CSC CAMS team believed that the procedural "work arounds" implemented by the Census Bureau posed a problem as well, and recommended that needed work-arounds be verified with the CSC before implementation to make certain they worked without unintended side effects. The CSC also agreed to establish more rigid requirements for "priority one" (i.e, Level 1) ARs; only ARs reported against currently operational software were to be considered for Level 1 status. Problems reported against software during testing were to be corrected within that release before the CSC moved on to the next release.³¹

Despite the efforts by the CSC and the Census Bureau, the continuing problems meant that while the CAMS was supposedly "fully operational" after June 1998 it was unable to be used to the degree originally intended to compile basic financial reports required for the Census Bureau's annual audit. The CAMS General Ledger module included five menu options intended to be used to produce the principal financial reports required—the Balance Sheet and the

³¹Memorandum, Roger W. Baker, Chief Information Officer, CAMS Support Center, to Nancy Potok, Principal Associate Director and Chief Financial Officer, U.S. Census Bureau, "Your memorandum re: CAMS Support dated 9/8/99." n.d., c. October 1999.

Statements of Net Cost, Changes in Net Position, Budgeting Resources, and Financing—but they were unusable for that purpose. The FIN identified a problem within the Statement of Net Cost that involved a single column of data, and, by manually recalculating this column, FIN was able to make the Statement of Net Cost report work. The Statement of Net Cost report itself supported the Changes in the Net Position report, and by carrying the changes made to the Net Cost calculations to the Changes in the Net Position report, FIN was able to use that as well. With regard to the Balance Sheet, the CSC stated that the Balance Sheet ties to the General Ledger in total, but it has not been able to correctly identify the intra-government/public split, so the Balance Sheet report is not ready for production. As of this writing (February 2001) the CAMS also remained unable to be used for producing the Statements of Budgetary Resources or Finances.³²

The problems with the system meant that the original objective of the integrated CAMS—the capability of generating financial reports directly from the agency’s financial database—had to be put off (see “Deployment,” p. 14, above). The new date for completion of the installation of the CAMS was put back to FY 2004, as work continued on the system. Assuming successful completion of the project on the new schedule, the implementation of the CAMS will have required 9 years.

³²Interview with Margie Oates, Chief, Financial Reporting Section, Finance Division, U.S. Census Bureau, February 14, 2001.

Appendix A. CAMS CHRONOLOGY

The Department of Commerce (DOC) publishes a "Management Plan for the Consolidation of the Department's Payroll, Personnel, and Administrative Payments Systems."	July 1981
The DOC selects the Federal Accounting and Reporting System (FARS) as the core accounting/financial system for the Department	1986
FARS determined to be unable to support financial management requirements for the DOC	Dec. 1989
DOC establishes a financial system steering committee to decide how to proceed with regard to a new departmental financial management system	Jan. 1990
The financial steering committee and its project teams complete evaluation of the DOC agencies' financial systems.	Jul. 1990
The DOC contracts with Price Waterhouse to evaluate alternative means of meeting the department's financial management system requirements	Sep. 1991
Price Waterhouse recommends the DOC consider adapting the U.S. Army Corps of Engineers Financial Management System (CEFMS)	Jan. 1992
Analysis & Evaluation (A & E) Team team established to evaluate the CEFMS for use by the Department of Commerce	Apr. 1992
Evaluation concludes CEFMS too closely tailored to the needs of the Corps of Engineers to be adapted to DOC requirements	Mar. 1993
Financial Systems Steering Committee renamed the CAMS Steering Committee	Sep. 1992
DOC establishes CAMS Implementation Center (later CAMS Support Center)	1992
The DOC decides to research commercial off-the-shelf (COTS) systems as possible financial management systems and issues a Request for Information (RFI) to interested vendors of financial software packages	Dec. 1993
Operational Capability Demonstrations of possible financial software packages to serve as "core financial system" (CFS)	Jun.-Oct. 1994
Census Bureau and DOC sign memorandum of agreement regarding implementation of CFS at the Census Bureau not later than October 1996	Jun. 1994

National Institute for Standards and Technology selected as lead agency for Commerce Administrative Management System (CAMS) CFS pilot project (Census Bureau, National Oceanic and Atmospheric Administration, and DOC Office of the Secretary also involved in planning and deploying parts or all of the CAMS CFS.)	Jul. 1994
Contract for development of a COTS for DOC financial management system awarded to Anderson Consultants	Dec. 1994
Rel-Tek System & Design's Federal Financial Management System (FFMS) selected for development as DOC's financial management system	Dec. 1994
Rel-Tek software package installed on computer at the DOC's CAMS Implementation Center	Jan. 1995
Census Bureau staff participate in demonstration of the NIST CFS at Boulder, CO	Jan. 1995
Rel-Tek delivers software revisions requested by DOC	Mar. 1995
Census Bureau CAMS implementation team undergoes CFS familiarization training	Mar. 1995
First CFS production modules demonstrated at Census Bureau	Mar. 1995
Census Bureau establishes a CAMS Implementation Office (CAMSIO) to oversee work on the new financial system.	Dec. 1995
Census Bureau prepares CFS deployment plan based on available software	Feb. 1996
DOC Inspector General finds CAMS project has fallen substantially behind schedule, is underfunded, has exceeded original cost estimates, and has experienced performance shortfalls.	Apr. 1996
DOC steering committee Chair forces delivery of CFS software from vendor	Aug. 1996
Census Bureau begins operating CFS package	Oct. 1996
Census Bureau combines CAMSIO and Administrative and Network Support Office to form Financial and Administrative Services Division (FASD)	Dec. 1996
DOC and Rel-Tek terminate contract for support of software packages and DOC seeks third-party vendors	Sep. 1997
DOC directs scaling back of the CAMS project from full implementation of CAMS department-wide to a "single" pilot test of the "Rel-Tek-based Core CAMS" at the Census Bureau	Oct. 1997

Census Bureau completes implementation of CAMS modules and applications: -Small Purchase System -General Ledger Interfaces -Accounts Receivable	Oct.-Dec. 1997
DOC contracts with Booz-Allen & Hamilton to evaluate strategy, systems, pilot results, and business case for implementation of "Core CAMS."	Oct. 1997
Census Bureau completes implementation of CAMS modules and applications: -Accounts Payable -Purchase Card System -Order Entry -Inventory-MSO -Small Purchases System -Time and Attendance Module -Personal Property -Employee Interface and Reporting System -Travel System -Enhancement to Postal System	Feb.-Oct. 1998
Census 2000 Dress Rehearsal	Apr. 1998
Booz-Allen & Hamilton begins "Independent Verification and Validation" (IV&V) of the CFS deployment at the Census Bureau	May 1998
DOC directs implementation only of "Core CAMS" department-wide (except for Census Bureau)	1998
DOC CAMS Support Center completes major revision of CAMS table structure	May 1998
Census Bureau initiates full activation of CAMS CFS	Jun. 1998
Booz-Allen & Hamilton complete IV&V	Aug. 1998
DOC directs Booz-Allen & Hamilton to develop new business case for CAMS	Sep. 1998
Census Bureau implements enhancements to CAMS modules and applications: -Postal System -Personal Property	Oct. 1997-Apr. 1998
Census Bureau begins implementation of Data Warehouse module	May 1999

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